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HEALTH CONDITIONS AND HEALTH SERVICE IN SAINT PAUL



BY

ESTHER M FLINT

WITH THE CO-OPERATION OF
CAROL ARONOVICI



AMHERST H. WILDER CHARITY
1919

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Introduction



IN consequence of the rather serious conditions of insanitation revealed by the Housing Survey which pointed to certain defects in sanitary legislation, and a lack of adequate and efficient municipal machinery for the enforcement of existing laws this study was undertaken.

While this study does not claim to present all the facts relating to the provision for the protection, preservation and restoration of health, the facts as stated are sufficiently comprehensive to give the citizens of St. Paul an understanding of the extent, character and adequacy of the health service available in the community.

It is hoped that the suggestions and criticisms offered will be made the subject of free discussion among the people of this city and that prompt and constructive action will result. In publishing these facts it is not the intention of the Wilder Charity to criticise personalities or agencies. It is merely an honest effort to afford an opportunity for concerted action that would lead toward keeping the health record of St. Paul at the head of the list of healthy communities throughout the United States.

CAROL ARONOVICI.

Acknowledgment



In gathering the data the writer received invaluable co-operation and assistance from the various agencies whose work is referred to in this study and especially from the Bureau of Health. Miss Gertrude Armstrong, a member of the staff of the Wilder Charity was most helpful as field investigator and in handling the statistical data contained in this report.

ESTHER M. FLINT.

General Considerations

Location

Topography and Climate

The topographical and climatic factors of the City of St. Paul are admirable from the point of view of health. The city is located on both banks of the Mississippi River, altho the portion on the southern bank, known as the West Side, or more recently called Riverview, is comparatively small and isolated, tending to form a more or less separate community in spite of the three bridges connecting it with the main portion of the city. The main portion lies on the north side on the high rolling land which ends in the steep bluffs forming the banks of the Mississippi, and which not only is high itself, but consists also of various hills and ridges so that the site is one affording natural drainage.

The climate of St. Paul, while habitually going to wide seasonal extremes, is not normally characterized by a preponderance of either intense heat or remarkably severe cold. In the five years from 1913 to 1917 the average maximum temperature was 95°, the average minimum 25°, and the mean 43.7°. But in that time the average number of days per year in which the temperature rose to 90° or above was 8, and the average number of days per year of zero weather or lower was 34. The precipitation during this five year period averaged 25.78 inches, but that was due to special conditions, the normal precipitation being 28.68 inches. The average snow fall was 43 inches. The prevailing direction of wind is northwest in the season from November to April and southeast from May to October. The percentage of hours of sunshine to possible hours of sunshine is about 55, and in the five year period from 1913 to 1917 there averaged 120 clear days, 131 partly cloudy, and 114 cloudy days. The mean relative humidity in this period averaged about 73%, which is higher than it probably would be if readings were taken more frequently as they are taken for temperature, since the city is subject to early morning fogs.

Population

The total area of the City of St. Paul is 35,480 acres. Of this 2,092 acres are water, 1,094 are in parks, 562 in boulevards and 20 in municipal forest, so that when these figures are deducted and allowance made for

various other non-occupiable areas, the total occupiable area of the city is something over 31,000 acres. The City is divided into twelve wards, very unequal as to size and as unequal in population. The total population as given in the last annual report of the Commissioner of Public Works, 1917, is 276,000 which figure was computed on the basis of the 1917 City Directory.* That the distribution of the 276,000 is decidedly uneven is shown by the fact that the population per acre varies from 2.8 in the Second Ward to 46.2 in the Fourth. Out of the whole twelve wards there are eight wards with less than 15 persons per acre.

That the scattering distribution of population tends towards producing somewhat rural conditions is borne out by the fact that the Dairy Inspector of the City Health Department has record of 94 dairy herds comprising 1,643 cows within the city limits. Such a condition very naturally has a direct bearing upon the health of the city.

Another factor affecting the conditions of health is the distribution by nationality of the population of St. Paul. The figures in the following tables were taken from the United States Census of 1910, the most recent statistics available.

TABLE I.

Showing Distribution of Population in St. Paul According to Country of Birth in 1910.

| Foreign country in which born, or if native, in which parents were born | TOTAL % of total population | | FOREIGN BORN | | NATIVE | | | |
|---|--------------------------------|-------|--------------|-------|---------------------------|-------|-------------------------|-------|
| | No. | % | No. | % | Both parents foreign born | | One parent foreign born | |
| | No. | % | No. | % | No. | % | No. | % |
| Austria | 8,209 | 3.83 | 3,900 | 1.97 | 3,405 | 1.28 | 904 | .58 |
| Belgium | 123 | .05 | 70 | .03 | 21 | .01 | 32 | .01 |
| Canada-French | 3,436 | 1.60 | 1,096 | .52 | 1,208 | .56 | 1,132 | .52 |
| Canada-Other | 7,567 | 3.48 | 3,302 | 1.21 | 1,408 | .79 | 2,857 | 1.48 |
| Denmark | 2,964 | 1.38 | 1,412 | .66 | 1,193 | .56 | 359 | .16 |
| England | 5,509 | 2.57 | 2,136 | .99 | 1,553 | .73 | 1,820 | .85 |
| Finland | 102 | .04 | 73 | .03 | 14 | .006 | 15 | .007 |
| France | 773 | .36 | 276 | .13 | 244 | .11 | 253 | .12 |
| Germany | 45,739 | 21.30 | 14,025 | 6.55 | 23,558 | 10.97 | 8,156 | 3.78 |
| Greece | 162 | .08 | 129 | .06 | 17 | .008 | 16 | .007 |
| Holland | 428 | .19 | 194 | .09 | 158 | .07 | 76 | .03 |
| Hungary | 2,888 | 1.35 | 1,989 | .93 | 785 | .37 | 114 | .05 |
| Ireland | 16,871 | 7.86 | 4,184 | 1.95 | 8,798 | 4.09 | 3,889 | 1.82 |
| Italy | 3,136 | 1.46 | 1,994 | .93 | 1,050 | .49 | 92 | .04 |
| Norway | 9,294 | 4.33 | 4,063 | 1.89 | 4,001 | 1.87 | 1,230 | .57 |
| Roumania | 339 | .16 | 267 | .12 | 68 | .03 | 4 | .002 |
| Russia | 7,007 | 3.27 | 4,359 | 2.04 | 2,428 | 1.13 | 220 | .10 |
| Scotland | 1,732 | .81 | 669 | .32 | 528 | .24 | 535 | .25 |
| Sweden | 24,640 | 11.50 | 11,335 | 5.25 | 11,379 | 5.37 | 1,926 | .88 |
| Switzerland | 1,326 | .63 | 544 | .26 | 473 | .23 | 309 | .14 |
| Turkey | 324 | .16 | 202 | .09 | 116 | .07 | 6 | .003 |
| Wales | 263 | .13 | 73 | .03 | 79 | .04 | 111 | .05 |
| All Other | 7,090 | 3.30 | 232 | .11 | 6,747 | 3.13 | 111 | .05 |
| All Countries | 149,922 | 69.84 | 56,524 | 26.33 | 69,231 | 32.25 | 24,167 | 11.26 |

*The estimated population for 1917 of the City of St. Paul, given by the Bureau of Census, is 252,465.

TABLE 1-A

Showing Distribution of Population in St. Paul According to Nativity in 1910

| Nativity | No. | % of Total Population |
|--|---------|-----------------------|
| U. S. | 64,822 | 30.16 |
| Foreign-born | 56,524 | 26.33 |
| Native with both parents foreign-born..... | 24,167 | 11.26 |
| Native with one parent foreign-born..... | 69,231 | 32.25 |
| Total | 214,744 | 100.00 |

TABLE II.

Showing Distribution of Population in St. Paul According to Age in 1910

| Age Period | Total | Native White | Foreignborn White | Negro | Indian |
|------------------------|---------|--------------|-------------------|-------|--------|
| Under 5 years..... | 18,426 | 17,932 | 326 | 164 | 1 |
| Under 1 year | 3,808 | 3,762 | 16 | 29 | 1 |
| 5 to 9 years..... | 17,485 | 16,416 | 928 | 140 | 1 |
| 10 to 14 years | 17,599 | 16,441 | 1,009 | 149 | 0 |
| 15 to 19 years..... | 22,125 | 20,025 | 1,915 | 177 | 0 |
| 20 to 24 years..... | 28,022 | 22,325 | 5,347 | 332 | 5 |
| 25 to 34 years | 44,530 | 29,933 | 13,581 | 997 | 1 |
| 35 to 44 years..... | 29,212 | 16,622 | 11,886 | 684 | 2 |
| 45 to 64 years..... | 30,900 | 13,490 | 16,966 | 430 | 0 |
| 65 years and over..... | 6,316 | 1,707 | 4,529 | 70 | 0 |
| Age unknown | 129 | 91 | 37 | 1 | 0 |
| Total | 214,744 | 154,992 | 56,524 | 3,144 | 10 |

It is of considerable interest to note from Table 1 that practically 70% of the total population is either foreign-born, or native with wholly or partly foreign parentage, the distribution of the total per cent. 69.84 being 26.33 foreign-born, 32.25 native with both parents foreign-born, and 11.26 native with one parent foreign-born. Of all those who are foreign-born or have foreign parentage the German and Swedish nationalities are far in the lead, being 21.3% and 11.5% respectively of the total population of St. Paul. The Irish, Norwegians and Austrians are next in importance, altho their proportion is not nearly so large, 7.86%, 4.33% and 3.83% respectively of the total population. About the same ratios hold true for the above nationalities when separated into the groups of foreign-born and native with one or both parents foreign-born, altho in the case of the Germans and the Irish the American-born with both parents foreign-born have a decided predominance—10.97% of the total population, and 4.09% for the Irish, in each case about half the per cent. for the total number of persons either born in Germany or Ireland or with German or Irish parentage.

In Table I-a is shown the relation between American-born inhabitants of St. Paul and the foreign-born or those who have one or both parents foreign-born. This table, however, should be studied in conjunction with Table II. It is interesting to note that while the natives of native parentage (30.16%) outnumber the foreign-born (26.33%), yet the former are themselves outnumbered by natives with one foreign-born parent (32.25%) to the extent of 2.09%.

The distribution of ages among the native-born and foreign-born as shown in Table II throws some light on the trend of populational distribution according to nativity in this city. It is evident that since the number of foreign-born of sixty-five years or over outnumber those under five years in almost the same proportion that the native-born under five years outnumber the native-born of sixty-five or over, the preponderance of foreign-born of former years is not being replaced by anywhere nearly the same number of foreign-born in the present and oncoming generation.

The importance of these figures rests mainly in their significance in showing the trend of the immigration situation in St. Paul rather than as a measure of present conditions, since altho they are the last available, they are about eight years old, and since in the last half of that time, at least, during the period of the war, racial distribution of the population of St. Paul cannot be said to have stood still. However, such significance as the available facts show should be taken into account and interpreted as far as the situation warrants.

Vital Statistics

ST. PAUL is proud, and very naturally so, of its low death rate. It is impossible, fortunately for the city's self-esteem, to calculate just how much of the credit for such a low rate belongs to the people themselves and how much to natural conditions. However, notwithstanding the presence of natural aids to a high standard of public health such as the healthful climate, lake water supply, and the comparatively short haul of the milk supply, there are still some conditions to be remedied, as a study of the vital statistics of the City will show.

General Death Rate

Below are given comparative death rates for St. Paul and the State of Minnesota for the years of 1910 to 1916. The rates for St. Paul were computed from the figures given in the annual City health reports for each of the years, using as a populational basis figures obtained from the office of the statistician, United States Census. Those for the State of Minnesota are taken directly from the annual Federal reports of mortality statistics:

TABLE III.

Showing Death Rates in St. Paul and State of Minnesota.

| | 1910 | 1911 | 1912 | 1913 | 1914 | 1915 | 1916 | 1910-16 |
|-----------------|------|------|------|------|------|------|------|---------|
| St. Paul | 11.9 | 10.7 | 10.2 | 11.0 | 11.3 | 10.7 | 11.3 | 11.0 |
| Minnesota | 10.9 | 10.5 | 9.5 | 10.4 | 10.6 | 10.1 | 10.7 | 10.3 |

The mortality rates as given for St. Paul for the above years in the City annual health reports are somewhat lower, being as follows: 1910, 10.88; 1911, 10.15; 1912, 9.81; 1913, 10.01; 1914, 10.50; 1915, 9.62; 1916, 10.32. The difference probably results from the use of local populational estimates instead of Federal ones.

A comparison of St. Paul's general death rate with those of the other cities of approximately the same population is given below, the rates in this case, for St. Paul as well as the other cities, being taken directly from the yearly mortality reports of the United States Census:

TABLE IV.

*Showing Death Rate from All Causes in St. Paul and Other Cities,
1911-'16*

| City | 1911 | 1912 | 1913 | 1914 | 1915 | 1916 |
|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Albany, N. Y..... | 20.4 | 20.1 | 19.8 | 19.4 | 20.0 | 19.3 |
| Bridgeport, Conn., | 13.9 | 13.9 | 14.9 | 15.0 | 15.4 | 19.4 |
| Cambridge, Mass. | 15.2 | 13.0 | 13.5 | 13.2 | 13.1 | 13.5 |
| Columbus, O. | 14.3 | 14.4 | 15.3 | 14.8 | 14.0 | 15.5 |
| Dayton, O. | 13.7 | 15.1 | 16.0 | 13.8 | 13.6 | 15.2 |
| Fall River, Mass. | 17.4 | 16.2 | 17.2 | 17.3 | 15.9 | 17.0 |
| Grand Rapids, Mich. | 13.6 | 13.0 | 13.3 | 12.9 | 12.5 | 12.2 |
| Indianapolis, Ind. | 14.7 | 15.0 | 15.7 | 15.9 | 14.7 | 15.6 |
| Jersey City, N. J..... | 15.8 | 14.0 | 14.6 | 13.8 | 14.5 | 14.6 |
| Kansas City, Mo. | 15.4 | 15.2 | 14.8 | 14.0 | 14.7 | 14.5 |
| Louisville, Ky. | 16.1 | 16.4 | 16.2 | 16.5 | 15.0 | 15.0 |
| Lowell, Mass. | 17.7 | 17.4 | 15.9 | 15.9 | 16.2 | 17.3 |
| Memphis, Tenn. | 21.3 | 21.7 | 20.8 | 20.7 | 19.8 | * |
| Minneapolis, Minn. | 11.5 | 10.4 | 11.6 | 12.0 | 11.5 | 12.4 |
| Nashville, Tenn. | 20.5 | 19.3 | 17.8 | 18.4 | 17.2 | * |
| New Haven, Conn. | 16.7 | 16.5 | 15.9 | 16.1 | 15.7 | 17.0 |
| Oakland, Cal. | 12.7 | 12.8 | 12.5 | 11.6 | 11.4 | 10.5 |
| Omaha, Neb. | 14.3 | 13.2 | 13.9 | 13.8 | 12.2 | 14.4 |
| Paterson, N. J..... | 14.6 | 14.0 | 13.5 | 13.5 | 13.2 | 14.5 |
| Portland, Ore. | 10.9 | 9.5 | 9.5 | 9.1 | 8.4 | 8.0 |
| Providence, R. I..... | 15.6 | 15.8 | 15.2 | 15.2 | 14.6 | 15.8 |
| Rochester, N. Y..... | 14.4 | 14.6 | 14.6 | 14.3 | 13.9 | 14.4 |
| Scranton, Pa. | 14.8 | 14.6 | 14.8 | 15.8 | 14.7 | 14.4 |
| Seattle, Wash. | 8.8 | 8.1 | 8.4 | 8.1 | 7.4 | 7.0 |
| Spokane, Wash. | 11.6 | 8.4 | 8.9 | 8.6 | 8.1 | 7.0 |
| St. Paul, Minn. | 10.9 | 10.2 | 11.0 | 11.4 | 10.7 | 11.3 |
| Syracuse, N. Y..... | 14.3 | 15.2 | 15.7 | 14.8 | 13.2 | 15.2 |
| Toledo, O. | 14.9 | 15.8 | 16.2 | 15.5 | 15.4 | 18.1 |
| Washington, D. C..... | 18.7 | 18.3 | 17.3 | 16.6 | 18.1 | 17.8 |
| Worcester, Mass. | 15.7 | 16.2 | 16.4 | 15.7 | 15.4 | 17.8 |

*Transcripts for deaths not received.

It is gratifying to note how nearly St. Paul heads the list in low mortality. Only Seattle, Washington, and Portland, Oregon show consistently lower rates,—8.8, 8.1, 8.4, 8.1, 7.4, 7.0 for the former, and 10.9, 9.5, 9.1, 8.4, 8.0 for the latter, altho Spokane, Washington, after 1911 with its rate of 11.6 shows rates nearly as low as Seattle, that is 8.4, 8.9, 8.6, 8.1, 7.0.

Infant Mortality

In another respect also the statistics for St. Paul are gratifying, that is, in the infant mortality rates. We have very few figures for comparison since infant mortality rates are notably difficult to get owing to the inadequacy of birth registration, but what comparative figures we could find are set forth in the following Table:

TABLE V.

Showing Number of Deaths of Infants under 1 year per 1,000 Births in St. Paul and Other Cities, 1910-1916.

| City | 1910 | 1911 | 1912 | 1913 | 1914 | 1915 | 1916 |
|-----------------------|-------|------|------|------|------|------|------|
| St. Paul | 125.9 | 99.6 | 96.3 | 85.8 | 82.7 | 78.0 | 66.3 |
| New Haven | 109 | 112 | 111 | 93 | 98 | 88 | |
| New York | 126 | 112 | 105 | 102 | 94 | 98 | |
| Springfield, Ill..... | | | | 129 | | | |
| Minneapolis | 104 | 96.7 | 75.2 | 85.3 | 83.4 | 71.1 | 82.4 |
| Richmond, Va. | 228 | 181 | 172 | 162 | 161 | 127 | 137 |

The steady decrease in the infant mortality rate for St. Paul since the big drop from 1910 to 1911 is a cause for congratulation, altho in view of the utter lack of infant welfare work by the Bureau of Health the City can hardly claim much credit for the good work. Moreover, the figures cannot be taken at quite their face value since the birth registration in St. Paul, as in many other cities, cannot be considered complete. For the year 1916 especially, there would seem to be strong cause for suspecting that the large reduction in the rate is due to incomplete registration of births rather than to remarkably efficient infant mortality prevention. However that may be, and however much more there is for St. Paul to accomplish in the line of infant mortality prevention, at least it is obvious that the city has already a good start and needs only to continue in the systematic reduction of the infant mortality rate shown in the above Table.

Main Causes of Death

The main causes of death in St. Paul for the years 1910 to 1916 have been tabulated from the City's annual health reports for those years. For puposes of comparison, a similar tabulation has been made for the State of Minnesota, using the figures in the annual mortality statistics report of the Federal Census, and the two Tables are given below:

TABLE VI.

Showing Number of Deaths in St. Paul by Main Causes, 1910-1916.

| Cause of Death | 1910 | 1911 | 1912 | 1913 | 1914 | 1915 | 1916 |
|------------------------------|-------|-------|-------|-------|-------|-------|-------|
| Tuberculosis (all forms) .. | 294 | 289 | 288 | 315 | 317 | 305 | 307 |
| Organic diseases of Heart... | 204 | 227 | 205 | 218 | 266 | 271 | 305 |
| Pneumonia | 231 | 241 | 191 | 207 | 285 | 277 | 207 |
| Cancer | 180 | 168 | 168 | 163 | 187 | 186 | 205 |
| Bright's Disease | 118 | 102 | 150 | 149 | 155 | 155 | 191 |
| Diarrhea and Enteritis..... | 161 | 99 | 127 | 122 | 131 | 75 | 97 |
| Diphtheria and Croup | 142 | 66 | 23 | 42 | 69 | 30 | 22 |
| Meningitis | 36 | 34 | 21 | 18 | 20 | 22 | 25 |
| Convulsions | 23 | 17 | 11 | 13 | 4 | 2 | 8 |
| Typhoid Fever | 42 | 22 | 23 | 19 | 25 | 18 | 13 |
| Scarlet Fever | 58 | 34 | 8 | 18 | 42 | 28 | 8 |
| Paralysis | 15 | 8 | 7 | 8 | 9 | 5 | 8 |
| Syphilis | 11 | 15 | 13 | 13 | 12 | 10 | 9 |
| Whooping-cough | 5 | 13 | 11 | 15 | 9 | 12 | 16 |
| Measles | 22 | | 1 | 18 | 5 | 14 | 14 |
| Small-pox | 1 | 2 | 1 | 0 | 0 | 1 | 0 |
| All other diseases | 1,015 | 1,048 | 1,058 | 1,218 | 1,153 | 1,186 | 1,350 |
| Total | 2,558 | 2,385 | 2,306 | 2,556 | 2,689 | 2,597 | 2,785 |

TABLE VII.

Showing Number of Deaths in Minnesota by Main Causes, 1910-1916.

| Cause of Death | 1910 | 1911 | 1912 | 1913 | 1914 | 1915 | 1916 |
|---|--------|--------|--------|--------|--------|--------|--------|
| Tuberculosis (all forms) . | 2,270 | 2,522 | 2,230 | 2,342 | 2,380 | 2,281 | 2,382 |
| Organic diseases of Heart | 1,698 | 1,891 | 1,912 | 2,025 | 2,257 | 2,279 | 2,415 |
| Pneumonia | 1,806 | 2,018 | 1,544 | 1,768 | 2,155 | 2,012 | 1,957 |
| Cancer | 1,400 | 1,423 | 1,498 | 1,638 | 1,701 | 1,780 | 1,963 |
| Bright's Disease | 1,051 | 1,225 | 1,392 | 1,441 | 1,539 | 1,640 | 1,739 |
| Diarrhea and Enteritis (under 2 years) | 1,641 | 988 | 764 | 1,146 | 978 | 745 | 440 |
| Diphtheria and Croup..... | 543 | 315 | 168 | 219 | 359 | 192 | 170 |
| Meningitis | 205 | 178 | 126 | 107 | 120 | 138 | 142 |
| Convulsions | 153 | 161 | 152 | 132 | 100 | 98 | 86 |
| Typhoid Fever | 668 | 283 | 128 | 235 | 224 | 153 | 124 |
| Scarlet Fever | 301 | 189 | 104 | 185 | 333 | 145 | 121 |
| Paralysis | 195 | 163 | 148 | 171 | 170 | 158 | 164 |
| Syphilis | 62 | 76 | 80 | 99 | 124 | 112 | 150 |
| Whooping Cough | 155 | 172 | 210 | 143 | 193 | 165 | 221 |
| Measles | 247 | 111 | 22 | 207 | 79 | 87 | 288 |
| Small-pox | 10 | 6 | 4 | 12 | 7 | 7 | 1 |
| All other diseases | 10,244 | 10,267 | 10,006 | 10,917 | 10,764 | 10,802 | 11,934 |
| Total | 22,649 | 21,988 | 20,488 | 22,787 | 23,483 | 22,794 | 24,297 |

The prevalence in St. Paul of the diseases mentioned in Tables VI and VII is more easily seen when reduced to terms of percentage, and accordingly the ratios for both City and State have been worked out as follows for the period of 1910 to 1916 as a whole:

TABLE VIII.

Showing Number and Percentage of Deaths in St. Paul and Minnesota by Main Causes, 1910-1916.

| CAUSE | PREVALENCE IN ST. PAUL | | PREVALENCE IN MINNESOTA | |
|--------------------------------|------------------------|-----------------------------------|-------------------------|-----------------------------------|
| | No. | % of deaths from all causes | No. | % of deaths from all causes |
| Tuberculosis (all forms)..... | 2,115 | 11.84 | 16,407 | 10.36 |
| Organic diseases of the Heart. | 1,696 | 9.44 | 14,477 | 9.14 |
| Pneumonia | 1,639 | 9.17 | 13,260 | 8.37 |
| Cancer | 1,257 | 7.03 | 11,403 | 7.19 |
| Bright's Disease | 1,020 | 5.71 | 10,027 | 6.33 |
| Diarrhea and Enteritis..... | 812 | 4.54 | 6,702 | 4.23 |
| Diphtheria and Croup..... | 394 | 2.20 | 1,966 | 1.24 |
| Meningitis | 176 | .99 | 1,016 | .64 |
| Convulsions | 78 | .44 | 882 | .55 |
| Typhoid Fever | 162 | .91 | 1,815 | 1.14 |
| Scarlet Fever | 196 | 1.09 | 1,378 | .87 |
| Paralysis | 60 | .33 | 1,169 | .74 |
| Syphilis | 83 | .46 | 703 | .44 |
| Whooping Cough | 81 | .45 | 1,259 | .79 |
| Measles | 74 | .41 | 1,041 | .65 |
| Small-pox | 5 | .03 | 47 | .03 |
| All other causes | 8,028 | 44.96 | 74,934 | 47.29 |
| Total | 17,876 | 100.00 | 158,486 | 100.00 |

It is worthy of note that in eight specific diseases—tuberculosis, organic diseases of the heart, pneumonia, diarrheal diseases, diphtheria,

meningitis, scarlet fever, and syphilis—St. Paul's rates are higher than those of the State. The difference in the rates are for the most part small, those for tuberculosis, pneumonia and diphtheria being the largest in which diseases the City's rates exceed the State's by 1.48%, .80% and .96% respectively. In the other cases of rates excessive over the State's the excess is less than one-half of one per cent; in syphilis .02% an almost negligible quantity, altho very possibly the city's percentage might be considerably higher than one made up of both rural and urban factors if the death reporting for this disease were as reliable as for other diseases.

In Table IX we see in what proportion St. Paul contributed to the State's quota of each of the diseases under discussion for the period of 1910 to 1916.

TABLE IX.

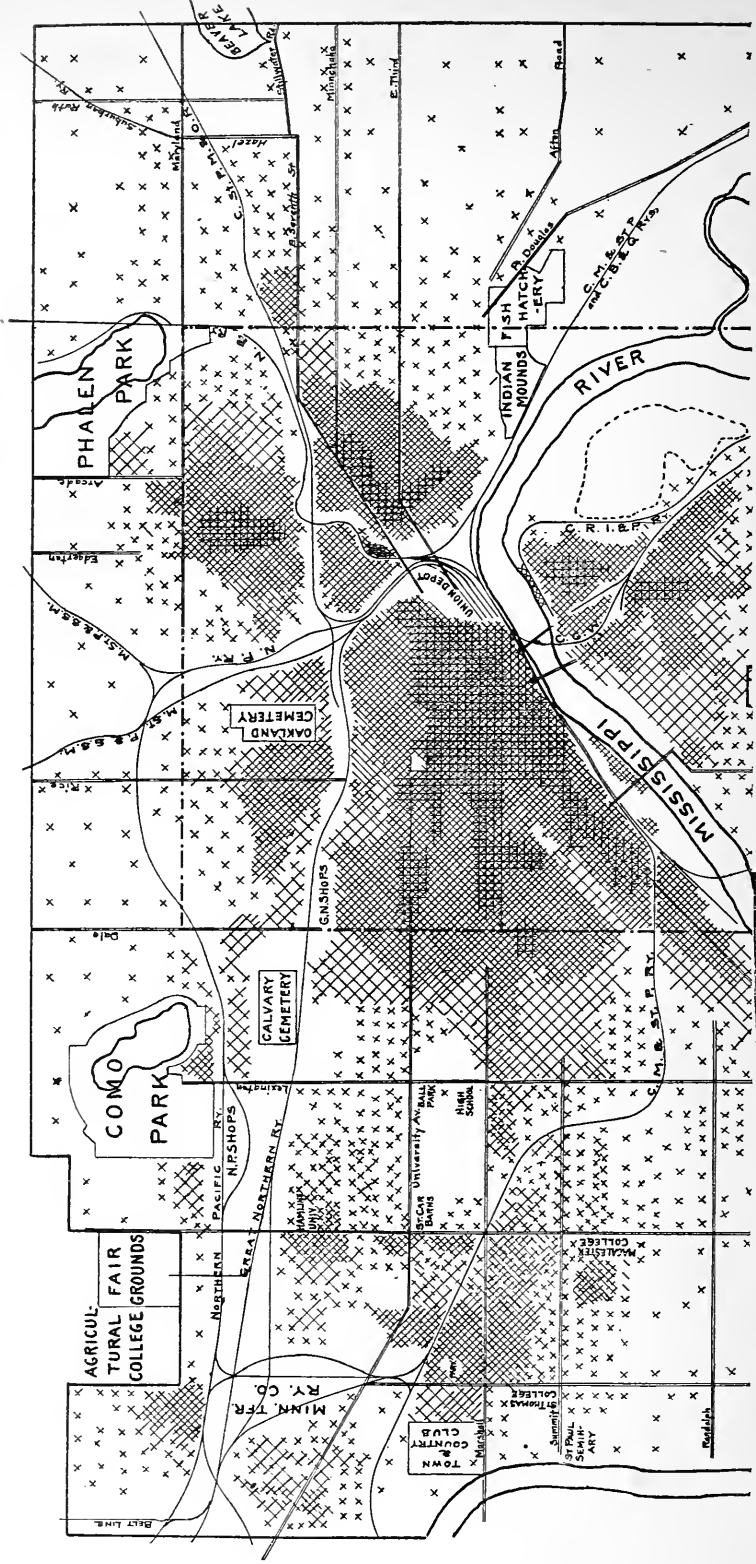
Showing Number and Percentage of Deaths by Main Causes in St. Paul of the Total Deaths in Minnesota from the Same Causes.

| CAUSE | No. deaths in Minnesota | No. deaths in St. Paul | % of deaths in St. Paul of deaths in Minnesota |
|------------------------------------|----------------------------|---------------------------|---|
| Tuberculosis (all forms) | 16,407 | 2,115 | 12.88 |
| Organic diseases of the heart..... | 14,477 | 1,696 | 11.71 |
| Pneumonia | 13,260 | 1,639 | 12.36 |
| Cancer | 11,403 | 1,257 | 11.02 |
| Bright's Disease | 10,027 | 1,020 | 10.10 |
| Diarrhea and Enteritis | 6,702 | 812 | 12.12 |
| Diphtheria and Croup | 1,966 | 394 | 20.04 |
| Meningitis | 1,016 | 176 | 17.30 |
| Convulsions | 882 | 78 | 8.84 |
| Typhoid Fever | 1,815 | 162 | 8.92 |
| Scarlet Fever | 1,378 | 196 | 14.22 |
| Paralysis | 1,169 | 60 | 5.13 |
| Syphilis | 703 | 83 | 11.80 |
| Whooping Cough | 1,259 | 81 | 6.43 |
| Measles | 1,041 | 74 | 7.10 |
| Small-pox | 47 | 5 | 10.64 |
| All other causes | 74,934 | 8,028 | 10.71 |
| Total | 158,486 | 17,876 | 11.28 |

The population for St. Paul in 1916, according to the figures of the Federal Statistician was 247,232, and that of Minnesota for the same year was 2,279,603, making the ratio of St. Paul's population to the State's to be 10.84. It will be seen from the above Table that while the ratio of the City's deaths to the State's varies from considerably lower than the populational ratio, as is the case of paralysis where only 5.13% of the State's deaths from that disease can be attributed to St. Paul, to a very much higher figure where St. Paul is responsible for 20.04% of all deaths from diphtheria throughout the State, the proportion of the total deaths from all causes in St. Paul is 11.28% of the same in the State. This figure is only slightly higher than the populational ratio, to be sure, .44% to be exact, and the difference is not unnatural in consideration of the urban factors involved.

ST. PAUL, MINN.

COMPILED FOR THE HOUSING SURVEY, JULY, 1917.








KEY TO SURVEY

BEING A SUBDIVISION OF THOSE PARTS OF THE CITY SURVEYED BY THE HOUSING COMMISSION

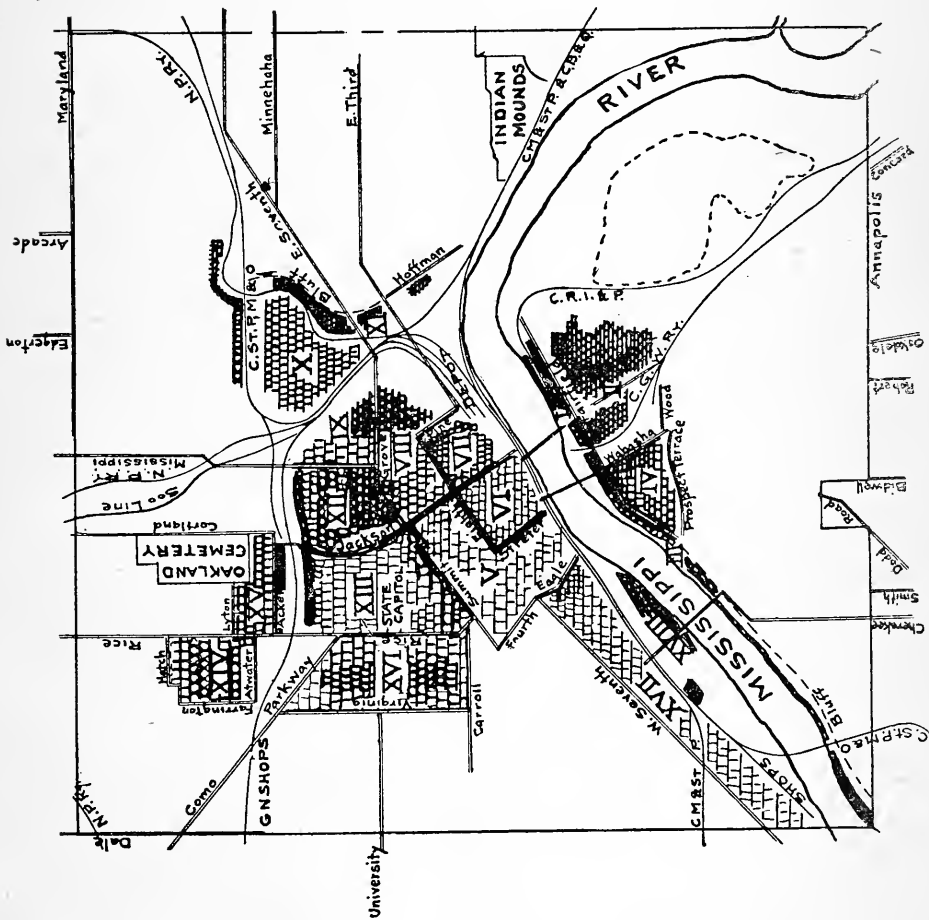
INTO DISTRICTS

SEPARATED BY PHYSICAL OB- STRUCTIONS, OR HAVING DIS- TINCT CHARACTERISTICS.

LEGEND

-  Fairly good, but old.
-  Once good, but depreciated.
-  Generally bad.
-  Houses poor & depreciated.
-  Shacks & Squalor.

IN GENERAL—The darker the map, the worse the housing conditions are.



The most obvious of such urban factors is that of congestion. To show any possible relation between mortality incidence in St. Paul and the city's congestion, a pin map was prepared showing the location of deaths in the last five years (1913-1917) due to the following preventable causes,—adult pneumonia, infant pneumonia (infants under two years), adult and infant tuberculosis, diphtheria, scarlet fever, typhoid fever, and infant deaths due to all other causes besides the above mentioned ones. Distinction between the various causes was designated by different colors, which of course, do not show in the photograph. However, the general distribution of the deaths is perfectly obvious regardless of lack of color.

Together with the map showing distribution of deaths we have by courtesy of Dr. Aronovici a map showing the relative density of population in St. Paul, which was prepared for publication in his report on "Housing Conditions in St. Paul."

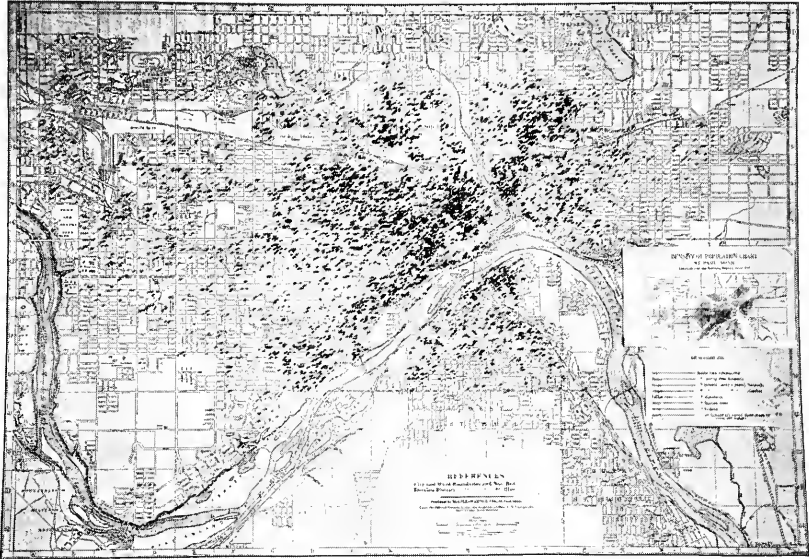
The closeness with which the mortality incidence follows the increase of congestion is plainly visible. Also to any one who has read Dr. Aronovici's above mentioned report there is a strikingly evident identity between those sections bearing the heaviest brunt of mortality incidence and those sections of the territory included in his survey which were found to show the worst housing conditions from all points of view. To show this relation graphically the following chart of conditions found by the Housing Survey, for which we are also indebted to Dr. Aronovici, is presented. A comparison of the latter with the photograph of the pin map prepared for this report will readily show the interdependence of mortality incidence and bad housing conditions with all their attendant evils of insanitation.

Another factor playing an important part with the prevalence of disease and death is that of dependency. We are fortunate in having at hand a map prepared by C. C. Stillman of the United Charities, St. Paul, showing the distribution of cases of dependency. The map was used in the Housing Survey to show correlation of dependency with congestion and bad housing conditions. It also shows, as can be seen from a comparison with the mortality pin map of this report, a marked correlation with the distribution of deaths from preventable diseases.

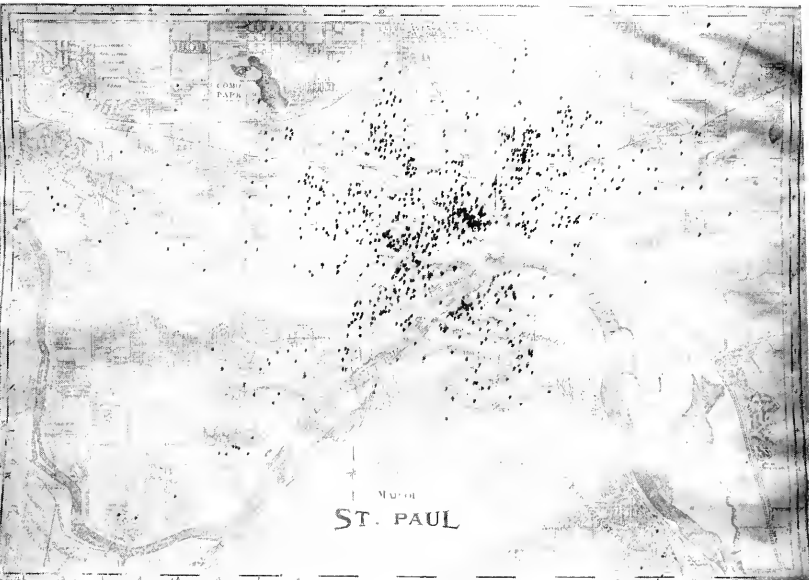
Statistical Data for Specific Diseases

MEASLES

The mortality rate for measles has been quite consistently low since a drop in 1911. The following table compiled from the annual mortality statistics reports shows how St. Paul compares with other cities in this respect. Since the rate for measles is characterized by wide annual variations in cities of the size of St. Paul, it is impossible to pick out any one city with an absolutely consistently low rate, St. Paul's being practically as low as any.



MAP SHOWING LOCATION OF DEATHS IN PERIOD 1913-1917 FROM CERTAIN PREVENTABLE DISEASES.



MAP SHOWING DISTRIBUTION OF CASES OF DEPENDENCY DEALT WITH BY THE UNITED CHARITIES OF THE CITY OF ST. PAUL IN 1916.

TABLE X.

Showing the Number of Deaths from Measles per 100,000 Population in St. Paul and Other Cities, 1910-1916.

| City | 1910 | 1911 | 1912 | 1913 | 1914 | 1915 | 1916 |
|----------------------|---------|---------|--------|---------|--------|---------|---------|
| Akron, Ohio | 17.2 | 1.4 | 9.3 | 5.2 | 10.0 | 2.4 | 47.4 |
| Albany, N. Y. | 23.9 | | 5.9 | 6.8 | 1.9 | 1.9 | 24.5 |
| Bridgeport, Conn. | 5.8 | 17.9 | 6.4 | 13.4 | 28.6 | 6.8 | 15.6 |
| Butte, Montana | 10.2 | 2.5 | | 24.3 | 2.4 | | 16.1 |
| Cambridge, Mass. | 3.8 | 9.4 | 8.4 | 9.2 | 10.9 | 5.4 | 7.1 |
| Camden, N. J. | 12.6 | 13.4 | | 18.9 | 5.9 | 20.1 | .0 |
| Columbus, O. | 23.6 | 11.2 | 11.9 | 4.5 | 11.7 | 6.7 | 15.8 |
| Dayton, O. | 1.7 | 0.8 | 12.5 | 4.1 | 5.7 | 2.4 | 1.6 |
| Denver, Colo. | 3.3 | 21.2 | 0.4 | 4.2 | 4.1 | 1.2 | 1.9 |
| Fall River, Mass. | 17.5 | 37.5 | 1.6 | 58.9 | 2.4 | 14.2 | 30.4 |
| Grand Rapids, Mich. | | 15.5 | | 9.1 | 4.1 | | 2.3 |
| Hartford, Conn. | 16.1 | 3.0 | 9.7 | 20.9 | 4.7 | 1.8 | 37.0 |
| Indianapolis, Ind. | 17.9 | 1.2 | 6.5 | 6.3 | 8.1 | | 9.8 |
| Jersey City, N. J. | 8.5 | 15.2 | 5.3 | 10.4 | 4.4 | 17.7 | 5.9 |
| Kansas City, Kan. | 26.6 | 4.7 | 1.1 | 18.5 | 5.3 | 3.1 | 5.0 |
| Kansas City, Mo. | 28.4 | 3.1 | 0.4 | 22.3 | 1.1 | 2.1 | 14.1 |
| Lawrence, Mass. | 20.8 | 26.7 | 18.7 | 37.4 | 6.3 | 30.6 | 20.9 |
| Louisville, Ky. | 1.3 | 25.5 | 0.4 | 6.0 | 8.5 | | 2.1 |
| Lowell, Mass. | 28.1 | 11.9 | 53.3 | 19.1 | 10.8 | 0.9 | 25.6 |
| Memphis, Tenn. | 6.1 | 27.8 | 2.9 | 11.4 | 5.6 | 2.7 | * |
| Minneapolis, Minn. | 15.8 | 1.3 | 3.4 | 6.0 | 2.6 | 3.7 | 20.4 |
| Nashville, Tenn. | 4.5 | 53.0 | 0.9 | 22.0 | 7.0 | 0.9 | * |
| New Bedford, Mass. | 41.0 | 11.8 | 5.8 | 33.4 | 3.6 | 35.7 | 14.4 |
| New Haven, Conn. | 4.5 | 2.2 | 18.7 | 1.4 | 21.5 | 12.2 | 5.3 |
| Oakland, Cal. | 4.0 | 11.5 | 3.0 | | 15.3 | 2.6 | .0 |
| Omaha, Neb. | 5.6 | 3.9 | 0.8 | 0.8 | 1.5 | 8.0 | 1.8 |
| Paterson, N. J. | 8.7 | 1.5 | 20.7 | 0.8 | 9.7 | 0.7 | 18.1 |
| Portland, Ore. | 3.8 | 8.6 | 0.4 | 2.4 | 8.1 | 1.5 | 2.7 |
| Providence, R. I. | 31.9 | 4.3 | 33.6 | 15.8 | 15.1 | 9.2 | 25.1 |
| Reading, Pa. | 14.5 | 14.3 | 6.0 | 17.7 | | 6.5 | 22.8 |
| Rochester, N. Y. | 5.9 | 5.7 | 11.3 | 3.4 | 5.3 | 3.2 | 8.1 |
| Salt Lake City, Utah | 3.2 | 26.8 | 4.0 | 12.3 | 4.6 | | 11.1 |
| Scranton, Pa. | 8.4 | 2.3 | 15.5 | 2.9 | 7.1 | 5.6 | 3.4 |
| Seattle, Wash. | 2.9 | 5.1 | 0.4 | 11.2 | **0.3 | ** | 3.4 |
| Spokane, Wash. | 7.6 | 5.3 | 5.8 | 0.8 | **6.6 | ** | 10.6 |
| Springfield, Mass. | 14.05 | 12.9 | 7.4 | 11.3 | 9.0 | 3.9 | 15.1 |
| St. Paul, Minn. | 14.8 | | 0.4 | 7.8 | 1.3 | 5.0 | 7.3 |
| Syracuse, N. Y. | 8.7 | 11.3 | 4.2 | 15.7 | 2.7 | 6.6 | .0 |
| Tacoma, Wash. | 2.4 | 3.4 | | 18.2 | **0 | ** | 8.9 |
| Toledo, O. | 16.5 | | 14.1 | 7.8 | 3.8 | 4.8 | 33.8 |
| Trenton, N. J. | ***17.5 | ***31.0 | ***9.8 | ***13.4 | ***2.8 | ***18.3 | ***17.0 |
| Washington, D. C. | 1.2 | 6.5 | 2.0 | 7.8 | 0.3 | 2.0 | 2.2 |
| Waterbury, Conn. | 8.2 | 18.5 | 9.0 | 17.4 | 3.6 | 7.1 | 13.8 |
| Wilmington, Del. | 1.1 | 13.5 | 2.2 | 15.4 | 16.2 | 3.2 | 27.6 |
| Worcester, Mass. | 15.7 | 3.3 | 9.9 | 10.0 | 11.4 | 1.2 | 34.3 |
| Youngstown, Ohio | 35.1 | 7.2 | 24.3 | 48.9 | 12.9 | 1.9 | 40.6 |

*Transcripts for deaths not received.

**Very low rate, due possibly to incomplete registration or to overestimates of population.

***Rate of area in which there is a state insane asylum.

Since mortality rates are not the only measure of the prevalence and evils of disease the following Table has been prepared showing the morbidity and fatality rates for measles in the City of St. Paul.

TABLE XI.

Showing the Number of Cases per 100,000 Population and the Number of Deaths per 100 Reported Cases from Measles in St. Paul, 1910-1916.

| YEAR | Reported cases | No. cases per 100,000 population | Deaths | No. deaths per 100 reported cases |
|------------|----------------|----------------------------------|--------|-----------------------------------|
| 1910 | 1,275 | 593 | 22 | 1.72 |
| 1911 | 118 | 57 | 0 | .00 |
| 1912 | 282 | 124 | 1 | .35 |
| 1913 | 1,311 | 566 | 18 | 1.37 |
| 1914 | 560 | 235 | 5 | .89 |
| 1915 | 1,216 | 502 | 14 | 1.15 |
| 1916 | 1,937 | 783 | 14 | .72 |
| 1917 | 2,946 | 1,166 | 12 | .40 |

It is gratifying to find that altho the fatality rates vary considerably for the different years they never run very high. The case rates for the disease vary also but this is to be expected considering the epidemic nature of measles.

SCARLET FEVER

Table XII is a comparison of St. Paul's mortality rate for scarlet fever with that rate for the same disease in other cities of approximately the same population.

TABLE XII

Showing the Number of Deaths from Scarlet Fever per 100,000 Population in St. Paul and Other Cities 1910-1916

| City | 1910 | 1911 | 1912 | 1913 | 1914 | 1915 | 1916 |
|--------------------------|------|------|------|------|------|------|------|
| Akron, O. | 12.9 | 37.3 | 26.7 | 10.3 | 8.7 | 9.6 | 4.4 |
| Albany, N. Y. | 12.0 | 1.0 | | 2.0 | 7.8 | 2.9 | .0 |
| Bridgeport, Conn. | 19.5 | 2.8 | 17.4 | 26.8 | 16.5 | 7.6 | 3.3 |
| Butte, Mont. | 50.9 | 17.6 | 9.9 | 55.9 | 4.7 | 2.3 | 4.6 |
| Cambridge, Mass. | 2.9 | 2.8 | 1.9 | | 1.8 | 3.6 | 1.8 |
| Camden, N. J. | 9.5 | 4.1 | 3.0 | 10.9 | 2.0 | 1.9 | 0.9 |
| Columbus, O. | 3.3 | 4.3 | 3.1 | 4.5 | 1.5 | 1.4 | 2.3 |
| Dayton, O. | 9.4 | 0.8 | 4.7 | 4.1 | 7.3 | 7.2 | 11.0 |
| Denver, Colo. | 17.2 | 5.0 | 7.4 | 22.3 | 10.6 | 3.6 | 1.2 |
| Fall River, Mass. | 2.5 | 1.6 | 7.3 | 21.8 | 9.6 | 4.7 | 1.6 |
| Grand Rapids, Mich. | 17.7 | 5.2 | 0.8 | 18.2 | 17.9 | 0.8 | 1.6 |
| Hartford, Conn. | 7.0 | 22.7 | 30.0 | 13.3 | 4.7 | 0.9 | 1.8 |
| Indianapolis, Ind. | 4.3 | 3.7 | 4.0 | 5.1 | 6.5 | 3.0 | 4.7 |
| Jersey City, N. J. | 17.1 | 11.6 | 9.2 | 14.3 | 7.5 | 5.0 | 3.9 |
| Kansas City, Kan. | 10.9 | 4.7 | | 3.2 | 7.4 | 5.2 | 14.1 |
| Kansas City, Mo. | 23.2 | 5.4 | 5.3 | 2.2 | 1.4 | 1.4 | 27.5 |
| Lawrence, Mass. | 8.1 | 3.3 | 4.4 | 4.3 | 3.1 | 8.1 | 5.0 |
| Louisville, Ky. | 9.4 | 3.5 | 3.9 | 3.4 | 5.1 | 0.8 | 0.4 |
| Lowell, Mass. | 41.2 | 4.6 | 5.5 | 3.6 | 1.8 | | 5.3 |
| Memphis, Tenn. | 5.3 | 2.3 | 0.7 | 8.5 | 2.1 | 4.8 | * |
| Minneapolis, Minn. | 16.5 | 6.1 | 4.6 | 18.9 | 26.2 | 3.1 | 4.4 |
| Nashville, Tenn. | 1.8 | 3.6 | | | | 1.7 | * |
| New Bedford, Mass. | 5.1 | 1.0 | | 2.8 | 27.0 | 7.8 | 1.7 |
| New Haven, Conn. | 8.2 | 10.2 | 5.7 | 8.5 | 4.8 | 3.4 | 6.7 |
| Oakland, Cal. | 3.3 | 1.3 | | 1.1 | 2.7 | 0.5 | .0 |

| City | 1910 | 1911 | 1912 | 1913 | 1914 | 1915 | 1916 |
|-------------------------|---------|--------|--------|---------|---------|--------|--------|
| Omaha, Neb. | 15.3 | 6.3 | 3.9 | 10.7 | 12.8 | 14.1 | 33.8 |
| Paterson, N. J. | 9.5 | 10.1 | 6.9 | 3.0 | 0.7 | | 2.2 |
| Portland, Ore. | 10.0 | 5.9 | 3.0 | 4.1 | 1.9 | 0.4 | 0.7 |
| Providence, R. I. | 6.7 | 13.4 | 11.9 | 5.4 | 8.2 | 7.6 | 6.3 |
| Reading, Pa. | 13.5 | 15.3 | | 8.9 | 5.8 | 5.6 | 9.1 |
| Rochester, N. Y. | 21.4 | 22.0 | 12.2 | 8.9 | 11.0 | 2.8 | 0.8 |
| Salt Lake City, U. | 39.6 | 12.4 | 2.0 | | 2.7 | 1.8 | 6.0 |
| Scranton, Pa. | 7.7 | 6.8 | 6.6 | 10.1 | 2.8 | 2.8 | 2.0 |
| Seattle, Wash. | 7.1 | 2.8 | 0.7 | 2.0 | **1.0 | **0.3 | .0 |
| Spokane, Wash. | 16.1 | 6.2 | 1.7 | 6.2 | **1.5 | **2.1 | 0.7 |
| Springfield, Mass. | 22.3 | 3.2 | 2.1 | 3.1 | 1.0 | 1.0 | 3.8 |
| St. Paul, Minn. | 30.2 | 16.0 | 4.0 | 7.8 | 19.4 | 12.4 | 3.2 |
| Syracuse, N. Y. | 16.7 | 26.0 | 7.0 | 13.0 | 8.0 | | 0.6 |
| Tacoma, Wash. | 7.1 | 9.0 | 1.1 | 3.0 | **2.9 | **0.9 | .0 |
| Toledo, O. | 5.9 | 5.2 | 9.6 | 6.7 | 1.1 | 4.3 | 4.0 |
| Trenton, N. J. | ***10.3 | ***7.0 | ***2.0 | ***26.8 | ***26.2 | ***3.7 | ***2.7 |
| Washington, D. C. | 4.2 | 1.2 | 1.2 | 4.0 | 0.3 | 2.5 | 1.6 |
| Waterbury, Conn. | 5.4 | 22.4 | 7.7 | 3.7 | 17.0 | | .0 |
| Wilmington, Del. | 12.6 | 7.9 | | 14.3 | 2.2 | 2.1 | 1.1 |
| Worcester, Mass. | 3.4 | 8.6 | 7.2 | 7.5 | 4.4 | 1.9 | 1.8 |
| Youngstown, O. | 8.8 | 4.8 | 39.3 | 11.1 | 4.0 | 4.8 | 6.5 |

*Transcripts for deaths not received.

**Very low rate, due possibly to incomplete registration or to overestimates of population.

***Rate of area in which there is a state insane asylum.

Except for the years 1912, 1913 and 1916 the rates in St. Paul are fairly high, so high at least, that St. Paul by no means leads the list since there are 13 cities out of the total 46—Cambridge, Columbus, Indianapolis, Lawrence, Louisville, Memphis, Nashville, Oakland, Seattle, Tacoma, Toledo, Washington and Worcester—with rates lower than 10.0 per 100,000 population.

The morbidity and fatality rates for scarlet fever in St. Paul are contained in the following table:

TABLE XIII.

Showing the Number of Cases per 100,000 Population and the Number of Deaths per 100 Reported Cases from Scarlet Fever in St. Paul 1910-1917

| YEAR | Reported cases | No. of cases per 100,000 population | No. deaths | No. deaths per 100 reported cases |
|------------|----------------|-------------------------------------|------------|-----------------------------------|
| 1910 | 1,061 | 494 | 58 | 5.47 |
| 1911 | 480 | 217 | 34 | 7.08 |
| 1912 | 180 | 79 | 8 | 4.44 |
| 1913 | 503 | 217 | 18 | 3.57 |
| 1914 | 687 | 291 | 42 | 6.11 |
| 1915 | 849 | 350 | 28 | 3.29 |
| 1916 | 375 | 139 | 8 | 2.13 |
| 1917 | 461 | 182 | 7 | 1.52 |

It is to be hoped that the last fatality rate known, 1.52 for 1917 is an index of a real improvement, since the general run of the previous ones is higher than could be wished. Similar figures for three of the years

under consideration are available for Springfield, Ill., from the survey of that city and are as follows :*

| | | | | | |
|---------------------------|------|------|------|------|------|
| Deaths per 100 cases from | 1909 | 1910 | 1911 | 1912 | 1913 |
| Scarlet Fever | 1.30 | 1.95 | 1.72 | | 2.70 |

It must be borne in mind that Springfield has a considerably smaller population with which to deal, but St. Paul's health service should be correspondingly adequate to handle the problems of its larger population so that its fatality rate for scarlet fever may be at least no higher than the standard achieved for Springfield.

DIPHTHERIA

Table XIV gives St. Paul's death rate for diphtheria in comparison with the rate for the same disease in the 45 other cities before mentioned.

TABLE XIV

*Showing the Number of Deaths from Diphtheria per 100,000 Population
In St. Paul and Other Cities 1910-1916*

| City | 1910 | 1911 | 1912 | 1913 | 1914 | 1915 | 1916 |
|--------------------------|------|------|------|------|--------|-------|------|
| Akron, O. | 27.3 | 44.3 | 50.7 | 34.8 | 10.0 | 15.7 | 30.9 |
| Albany, N. Y. | 14.9 | 24.8 | 28.5 | 22.5 | 12.6 | 17.4 | 11.3 |
| Bridgeport, Conn. | 27.3 | 14.2 | 14.7 | 20.5 | 38.2 | 26.2 | 18.9 |
| Butte, Mont. | 15.3 | 5.0 | | 2.4 | 4.7 | 4.7 | 29.9 |
| Cambridge, Mass. | 22.8 | 39.4 | 24.1 | 12.8 | 15.4 | 25.1 | 14.2 |
| Camden, N. J. | 66.3 | 38.0 | 50.7 | 39.8 | 23.4 | 28.7 | 27.3 |
| Columbus, O. | 11.5 | 12.8 | 20.6 | 10.5 | 8.8 | 11.0 | 8.8 |
| Dayton, O. | 11.1 | 9.3 | 41.5 | 35.2 | 17.8 | 15.1 | 16.5 |
| Denver, Colo. | 18.6 | 16.7 | 5.6 | 8.0 | 4.1 | 3.2 | 1.5 |
| Fall River, Mass. | 19.2 | 22.0 | 26.1 | 27.4 | 20.7 | 26.0 | 15.6 |
| Grand Rapids, Mich. | 10.6 | 10.3 | 12.7 | 43.9 | 26.8 | 11.9 | 7.0 |
| Hartford, Conn. | 34.2 | 42.5 | 40.7 | 28.5 | 16.8 | 18.4 | 20.7 |
| Indianapolis, Ind. | 6.8 | 17.1 | 14.6 | 18.9 | 11.2 | 7.9 | 19.9 |
| Jersey City, N. J. | 30.8 | 21.0 | 15.3 | 25.7 | 31.0 | 19.7 | 14.0 |
| Kansas City, Kans. | 35.1 | 10.5 | 11.2 | 10.9 | 14.9 | 32.0 | 27.2 |
| Kansas City, Mo. | 21.6 | 12.4 | 10.2 | 12.8 | 24.1 | 24.5 | 28.5 |
| Lawrence, Mass. | 39.3 | 20.1 | 12.1 | 10.7 | 36.5 | 33.6 | 23.9 |
| Louisville, Ky. | 10.7 | 11.9 | 11.3 | 15.0 | 7.2 | 5.9 | 6.7 |
| Lowell, Mass. | 20.6 | 15.6 | 15.6 | 31.9 | 23.4 | 23.2 | 38.9 |
| Memphis, Tenn. | 16.7 | 16.5 | 10.2 | 10.0 | 15.4 | 13.0 | * |
| Minneapolis, Minn. | 42.9 | 23.8 | 13.9 | 16.8 | 42.2 | 17.8 | 19.0 |
| Nashville, Tenn. | 6.3 | 8.1 | 7.1 | 7.0 | 9.6 | 8.6 | * |
| New Bedford, Mass. | 25.6 | 9.8 | 18.2 | 31.5 | 18.9 | 22.7 | 9.3 |
| New Haven, Conn. | 12.7 | 19.0 | 12.2 | 16.2 | 19.4 | 23.1 | 16.0 |
| Oakland, Cal. | 7.3 | 7.0 | 9.0 | 13.7 | 13.1 | 9.4 | 12.6 |
| Omaha, Neb. | 13.6 | 15.0 | 8.5 | 16.0 | 42.8 | 22.7 | 21.2 |
| Paterson, N. J. | 20.6 | 16.3 | 20.7 | 9.8 | 15.6 | 13.9 | 13.7 |
| Portland, Ore. | 22.4 | 12.3 | 6.0 | 5.3 | 10.0 | 6.2 | 2.4 |
| Providence, R. I. | 21.7 | 24.7 | 32.7 | 29.6 | 24.1 | 22.0 | 29.8 |
| Reading, Pa. | 30.1 | 38.7 | 42.0 | 38.4 | 31.0 | 9.3 | 10.0 |
| Rochester, N. Y. | 17.3 | 41.0 | 27.3 | 17.4 | 11.8 | 7.2 | 9.3 |
| Salt Lake City, U. | 34.2 | 26.8 | 4.0 | 5.7 | 12.8 | 27.3 | 13.6 |
| Scranton, Pa. | 28.4 | 12.8 | 25.0 | 31.7 | 22.6 | 27.8 | 17.0 |
| Seattle, Wash. | 6.3 | 8.7 | 4.3 | 4.4 | ** 2.2 | **0.6 | 2.0 |
| Spokane, Wash. | 18.0 | 8.0 | 5.0 | 0.8 | **3.7 | **5.6 | 0.7 |

(For meaning of asterisks in Table, see p. 21.)

*Springfield Survey-Public Health Section, p. 29.

| City | 1910 | 1911 | 1912 | 1913 | 1914 | 1915 | 1916 |
|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|------------|
| Springfield, Mass. | 41.3 | 9.7 | 16.9 | 16.4 | 12.9 | 10.7 | 17.9 |
| St. Paul, Minn. | 64.0 | 32.9 | 10.6 | 18.6 | 29.1 | 12.4 | 8.9 |
| Syracuse, N. Y. | 18.8 | 25.3 | 17.4 | 14.3 | 10.7 | 10.5 | 13.5 |
| Tacoma, Wash. | 22.5 | 10.2 | 7.4 | 7.1 | **1.9 | **0.9 | 6.2 |
| Toledo, O. | 19.5 | 24.9 | 33.4 | 23.3 | 17.9 | 16.5 | 17.2 |
| Trenton, N. J. | ***30.8 | ***27.0 | ***11.8 | ***26.8 | ***22.5 | ***24.7 | ***17.0 |
| Washington, D. C. | 9.3 | 5.6 | 4.4 | 7.8 | 8.2 | 7.5 | 9.6 |
| Waterbury, Conn. | 44.8 | 26.4 | 21.8 | 28.6 | 26.7 | 15.3 | 28.7 |
| Wilmington, Del. | 29.7 | 22.5 | 11.1 | 8.8 | 19.6 | 11.8 | 10.6 |
| Worcester, Mass. | 34.8 | 23.9 | 21.7 | 22.5 | 12.0 | 13.7 | 14.7 |
| Youngstown, O. | 37.6 | 48.2 | 58.9 | 47.8 | 19.9 | 7.7 | 5.5 |

*Transcripts of deaths not received.

**Very low rate, due possibly to incomplete registration or to overestimate of population.

***Rate of area in which there is a state insane asylum.

Altho St. Paul should not be too proud of the rates as shown, ranging from 8.9 to 64.0 with the majority of them over 15.0, yet there are not many of the cities cited with a consistently lower rate,—only Nashville, Seattle, and Washington, whose rates for the given years are all below 10.0.

The morbidity and fatality rates for diphtheria in St. Paul also show that there is still something to be desired in the control of this disease, as is put forth in Table XV.

TABLE XV.

Showing the Number of Cases per 100,000 Population and the Number of Deaths per 100 Reported Cases from Diphtheria in St. Paul 1910-1917

| YEAR | Reported cases | No. of cases per 100,000 population | No. deaths | No. deaths per 100 reported cases |
|------------|----------------|-------------------------------------|------------|-----------------------------------|
| 1910 | 1,402 | 652 | 142 | 10.12 |
| 1911 | 780 | 353 | 63 | 8.46 |
| 1912 | 392 | 173 | 23 | 8.42 |
| 1913 | 611 | 264 | 42 | 6.87 |
| 1914 | 989 | 418 | 69 | 6.95 |
| 1915 | 471 | 153 | 30 | 6.37 |
| 1916 | 457 | 184 | 22 | 4.81 |
| 1917 | 897 | 355 | 40 | 4.45 |

Altho the above fatality rates are not uncommonly high, there is no cause for gratification in them, unless it be in the fact that they seem to be quite steadily on the decrease.

TYPHOID FEVER

Table XVI shows St. Paul's death rate for typhoid fever in comparison with the other cities:

TABLE XVI

Showing the Number of Deaths from Typhoid Fever per 100,000 Population in St. Paul and Other Cities 1910-1916

| City | 1910 | 1911 | 1912 | 1913 | 1914 | 1915 | 1916 |
|-----------------------------|-------------|-------------|-------------|------------|-------------|------------|------------|
| Akron, O. | 30.2 | 42.9 | 26.7 | 20.6 | 31.1 | 30.1 | 24.3 |
| Albany, N. Y. | 14.0 | 18.8 | 17.7 | 27.4 | 17.5 | 12.6 | 7.5 |
| Bridgeport, Conn. | 4.9 | 3.8 | 8.3 | 6.2 | 3.5 | 5.1 | 9.0 |
| Butte, Mont. | 28.0 | 22.6 | 2.5 | 12.1 | 7.1 | 9.3 | 9.2 |
| Cambridge, Mass. | 9.5 | 2.8 | 3.7 | 9.2 | 1.8 | 1.8 | 1.8 |
| Camden, N. J. | 16.8 | 9.2 | 11.1 | 18.9 | 14.6 | 9.6 | 20.7 |
| Columbus, O. | 18.1 | 13.9 | 19.6 | 19.1 | 13.2 | 13.4 | 13.0 |
| Dayton, O. | 21.4 | 18.6 | 19.1 | 18.0 | 11.3 | 17.5 | 19.7 |
| Denver, Colo. | 27.5 | 18.0 | 15.2 | 13.5 | 9.0 | 6.3 | 7.3 |
| Fall River, Mass. | 15.0 | 14.7 | 18.0 | 8.9 | 9.6 | 15.0 | 10.9 |
| Grand Rapids, Mich. | 28.3 | 26.7 | 33.9 | 18.2 | 27.6 | 27.8 | 16.4 |
| Hartford, Conn. | 19.1 | 19.8 | 12.6 | 22.8 | 26.2 | 19.3 | 17.1 |
| Indianapolis, Ind. | 28.5 | 25.8 | 17.8 | 24.4 | 25.8 | 14.3 | 26.1 |
| Jersey City, N. J. | 11.5 | 7.2 | 7.8 | 10.8 | 7.5 | 5.7 | 7.2 |
| Kansas City, Kans. | 95.5 | 59.5 | 25.8 | 29.4 | 22.3 | 15.5 | 14.1 |
| Kansas City, Mo. | 54.4 | 29.9 | 12.0 | 21.9 | 16.3 | 9.7 | 11.4 |
| Lawrence, Mass. | 16.2 | 12.3 | 13.2 | 12.8 | 7.3 | 8.1 | 8.0 |
| Louisville, Ky. | 31.7 | 23.7 | 21.8 | 23.2 | 25.9 | 13.9 | 13.4 |
| Lowell, Mass. | 19.7 | 7.3 | 10.1 | 10.0 | 10.8 | 16.1 | 11.5 |
| Memphis, Tenn. | 27.4 | 65.4 | 58.9 | 34.2 | 42.6 | 26.7 | * |
| Minneapolis, Minn. | 58.7 | 11.9 | 11.7 | 12.0 | 12.5 | 7.6 | 5.5 |
| Nashville, Tenn. | 48.9 | 53.9 | 32.8 | 36.9 | 51.3 | 37.1 | * |
| New Bedford, Mass. | 21.5 | 22.5 | 18.2 | 10.2 | 11.7 | 20.9 | 6.8 |
| New Haven, Conn. | 17.9 | 24.9 | 24.4 | 12.7 | 15.2 | 19.7 | 8.7 |
| Oakland, Cal. | 16.5 | 14.0 | 13.7 | 12.0 | 6.6 | 6.8 | 4.0 |
| Omaha, Neb. | 86.6 | 18.1 | 14.0 | 7.6 | 4.5 | 6.1 | 3.0 |
| Paterson, N. J. | 7.1 | 7.0 | 5.4 | 8.3 | 4.5 | 4.4 | 4.3 |
| Portland, Ore. | 22.4 | 19.1 | 16.6 | 6.5 | 6.9 | 5.1 | 4.7 |
| Providence, R. I. | 17.7 | 12.1 | 10.2 | 11.2 | 11.0 | 8.0 | 5.1 |
| Reading, Pa. | 32.1 | 23.4 | 28.0 | 59.0 | 31.9 | 18.6 | 19.1 |
| Rochester, N. Y. | 13.7 | 10.6 | 11.7 | 8.9 | 10.2 | 6.0 | 5.0 |
| Salt Lake City, U. | 46.0 | 23.7 | 19.8 | 16.1 | 10.0 | 7.0 | 9.4 |
| Scranton, Pa. | 16.9 | 14.3 | 10.3 | 9.4 | 9.2 | 12.5 | 6.1 |
| Seattle, Wash. | 14.2 | 10.3 | 7.6 | 4.7 | **7.0 | **2.4 | 3.2 |
| Spokane, Wash. | 45.4 | 35.6 | 17.4 | 7.0 | **12.5 | **9.8 | 2.0 |
| Springfield, Mass. | 14.5 | 18.3 | 16.9 | 20.5 | 21.9 | 10.7 | 5.7 |
| St. Paul, Minn. | 19.5 | 10.5 | 10.6 | 9.1 | 11.0 | 7.0 | 5.7 |
| Syracuse, N. Y. | 28.2 | 16.2 | 16.7 | 13.0 | 10.0 | 5.9 | 12.2 |
| Tacoma, Wash. | 21.3 | 17.0 | 11.7 | 12.2 | **7.7 | **7.4 | 6.2 |
| Toledo, O. | 37.2 | 23.1 | 31.7 | 41.6 | 36.9 | 22.9 | 22.2 |
| Trenton, N. J. | ***50.3 | ***44.0 | ***39.2 | ***21.1 | ***17.8 | ***13.7 | ***6.3 |
| Washington, D. C. | 23.2 | 22.2 | 23.0 | 16.4 | 11.9 | 12.0 | 12.9 |
| Waterbury, Conn. | 20.4 | 23.7 | 15.4 | 13.7 | 9.7 | 29.5 | 11.5 |
| Wilmington, Del. | 37.7 | 28.2 | 30.1 | 23.1 | 25.0 | 18.3 | 29.7 |
| Worcester, Mass. | 15.7 | 6.0 | 3.3 | 5.6 | 3.8 | 5.6 | 3.7 |
| Youngstown, O. | 57.7 | 44.6 | 31.2 | 47.8 | 39.8 | 31.6 | 35.1 |

*Transcripts of deaths not received.

**Very low rate, due possibly to incomplete registration or to overestimates of population.

***Rates of area in which there is a state insane asylum.

As is to be expected considering the nature of the City's water supply and the consequent absence of contamination, the mortality rates for typhoid fever in St. Paul do not run strikingly high, but on the other hand, in view of these considerations we might well expect the rates to be lower than 19.5, 10.5, 10.6, 9.1, 11.0 and 7.0 as listed in the Table. Especially might we look for such a condition when we note that three cities, Bridgeport, Cambridge, and Paterson—have typhoid rates lower than 10 deaths per 100,000.

That the fairly high death rate is due to high fatality rather than to widespread prevalence of the disease is borne out by the following Table of case and fatality rates:

TABLE XVII.

Showing the Number of Cases per 100,000 Population and the Number of Deaths per 100 Reported Cases from Typhoid Fever in St. Paul 1910-1917

| YEAR | Reported cases | No. of cases per 100,000 population | No. deaths | No. deaths per 100 reported cases |
|------------|----------------|-------------------------------------|------------|-----------------------------------|
| 1910 | 369 | 171 | 42 | 11.38 |
| 1911 | 123 | 55 | 22 | 17.88 |
| 1912 | 124 | 54 | 23 | 18.54 |
| 1913 | 160 | 78 | 19 | 11.87 |
| 1914 | 161 | 68 | 25 | 15.52 |
| 1915 | 151 | 62 | 18 | 11.92 |
| 1916 | 53 | 21 | 12 | 22.64 |
| 1917 | 42 | 17 | 6 | 14.29 |

We can note no steady improvement in the above figures, unless perhaps the increasingly low case rates of the last two years 1916 and 1917 are indicative of a change for the better. Inasmuch as typhoid fever is one of the most preventable of the communicable diseases, St. Paul has no great cause for satisfaction so long as it remains a menace albeit a comparatively small one.

SMALL-POX

In these times when the weapons of science have waged increasingly successful war on the once all terrifying scourge of small-pox it is to the discredit of a city to have any mortality rate from this disease. Few of the cities used for comparison with St. Paul show any small-pox death rates, altho St. Paul itself does for all but two of the years under discussion.

Table XVIII shows St. Paul's rates and those of the 13 other cities which also plead guilty to having deaths from small-pox.

TABLE XVIII

Showing the Number of Deaths from Small-pox per 100,000 Population in St. Paul and Other Cities 1910-1916.

| City | 1910 | 1911 | 1912 | 1913 | 1914 | 1915 | 1916 |
|-------------------------|------|------|------|------|------|------|------|
| Albany, N. Y. | | | | 1.0 | | | |
| Kansas City, Kans. | 1.2 | 2.3 | | | 1.1 | | |
| Kansas City, Mo. | 0.8 | 3.1 | 0.4 | 0.4 | 1.8 | 0.3 | |
| Memphis, Tenn. | | 0.8 | | | | | |
| Minneapolis, Minn. | 0.3 | 0.3 | | | | 0.3 | |
| New Bedford, Mass. | | | | | | 8.7 | |
| Omaha, Neb. | | | | | 0.8 | | |
| Portland, Ore. | | | 0.4 | 0.8 | | 0.4 | |
| Salt Lake City, U. | 1.1 | | 1.0 | | | | |
| Seattle, Wash. | | 0.4 | | | *0.3 | | |
| Spokane, Wash. | | 0.9 | | | | | |
| St. Paul, Minn. | 0.5 | 0.9 | 0.4 | | | 0.4 | |
| Tacoma, Wash. | | | 1.1 | | | | |
| Youngstown, O. | | | | | | 1.9 | |

*Very low rate, due possibly to incomplete registration or to overestimates of population.

The rates for St. Paul are gratifyingly low, as are the fatality rates also, shown in the following Table:

TABLE XIX

Showing the Number of Cases per 100,000 Population and the Number of Deaths per 100 Reported Cases from Small-pox in St. Paul 1910-1917

| YEAR | Reported Cases | No. cases per 100,000 population | No. of deaths | No. deaths per 100 reported cases |
|------------|----------------|----------------------------------|---------------|-----------------------------------|
| 1910 | 170 | 79 | 1 | .58 |
| 1911 | 520 | 235 | 2 | .38 |
| 1912 | 634 | 280 | 1 | .15 |
| 1913 | 310 | 134 | 0 | .00 |
| 1914 | 61 | 26 | 0 | .00 |
| 1915 | 117 | 48 | 1 | .85 |
| 1916 | 129 | 52 | 0 | .00 |
| 1917 | 270 | 106 | 0 | .00 |

It remains for the city to reduce the case rate to a correspondingly low figure, and that should not be difficult to do with the easily available preventive measure of vaccination at hand.

TUBERCULOSIS OF THE LUNGS

Altho the rate of deaths from tuberculosis of the lungs is considerably lower in St. Paul than that in many other cities of the same size, St. Paul still has no cause for complacency.

TABLE XX.

Showing the Number of Deaths from Tuberculosis of the Lungs per 100,000 Population in St. Paul and Other Cities 1910-'16

| City | 1910 | 1911 | 1912 | 1913 | 1914 | 1915 | 1916 |
|-----------------------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|
| Akron, O. | 74.7 | 92.7 | 98.7 | 91.5 | 78.5 | 94.0 | 85.0 |
| Albany, N. Y. | 239.1 | 239.7 | 206.4 | 226.7 | 245.7 | 261.6 | 208.5 |
| Bridgeport, Conn. | 178.2 | 108.6 | 86.2 | 83.8 | 98.0 | 120.7 | 118.4 |
| Butte, Mont. | 218.9 | 220.8 | 205.2 | 245.4 | 224.7 | 184.6 | 195.7 |
| Cambridge, Mass. | 245.4 | 166.9 | 176.4 | 184.3 | 167.6 | 182.7 | 172.6 |
| Camden, N. J. | 124.2 | 177.8 | 140.8 | 149.1 | 165.9 | 105.4 | 121.4 |
| Columbus, O. | 177.5 | 159.1 | 145.5 | 137.4 | 137.4 | 132.1 | 125.2 |
| Dayton, O. | 161.7 | 143.7 | 132.9 | 147.4 | 121.2 | 152.2 | 121.8 |
| Denver, Colo. | 301.6 | 270.2 | 271.4 | 244.7 | 241.5 | 235.4 | 199.0 |
| Fall River, Mass. | 141.8 | 136.2 | 125.7 | 128.2 | 146.7 | 113.5 | 161.3 |
| Grand Rapids, Mich. | 101.6 | 87.0 | 77.0 | 54.7 | 68.2 | 85.1 | 64.7 |
| Hartford, Conn. | 154.1 | 117.5 | 90.1 | 102.8 | 89.7 | 71.6 | 103.7 |
| Indianapolis, Ind. | 178.9 | 154.1 | 153.5 | 182.1 | 175.5 | 174.0 | 159.6 |
| Jersey City, N. J. | 176.0 | 166.4 | 142.5 | 133.5 | 139.5 | 144.6 | 143.6 |
| Kansas City, Kan. | 153.6 | 173.9 | 157.3 | 159.2 | 129.4 | 132.2 | 108.6 |
| Kansas City, Mo. | 150.0 | 149.9 | 146.6 | 134.0 | 136.6 | 157.0 | 140.7 |
| Lawrence, Mass. | 108.6 | 139.3 | 133.9 | 127.3 | 93.9 | 123.2 | 126.3 |
| Louisville, Ky. | 222.5 | 210.6 | 183.6 | 160.8 | 185.0 | 165.8 | 159.9 |
| Lowell, Mass. | 112.4 | 114.7 | 117.7 | 90.1 | 95.5 | 101.7 | 103.3 |
| Memphis, Tenn. | 250.3 | 220.2 | 224.8 | 243.0 | 273.0 | 262.1 | * |
| Minneapolis, Minn. | 121.1 | 133.7 | 117.2 | 116.1 | 113.5 | 124.2 | 117.8 |
| Nashville, Tenn. | 211.7 | 202.9 | 193.4 | 174.0 | 201.9 | 201.8 | * |
| New Bedford, Mass. ... | 112.7 | 134.2 | 117.0 | 114.1 | 130.4 | 128.2 | 145.6 |
| New Haven Conn. | 146.9 | 123.6 | 101.9 | 112.7 | 110.7 | 89.1 | 95.5 |
| Oakland, Cal. | 126.2 | 104.7 | 115.3 | 106.7 | 101.1 | 112.7 | 94.2 |
| Omaha, Neb. | 123.6 | 97.8 | 90.0 | 90.0 | 101.3 | 93.1 | 101.5 |
| Paterson, N. J. | 163.2 | 168.9 | 116.0 | 133.1 | 113.9 | 121.7 | 131.5 |
| Portland, Ore. | 83.1 | 85.0 | 71.2 | 64.5 | 61.4 | 67.1 | 58.2 |
| Providence, R. I. | 153.5 | 131.8 | 115.2 | 129.1 | 121.6 | 125.6 | 134.1 |
| Reading, Pa. | 107.8 | 102.9 | 76.1 | 86.6 | 112.2 | 91.1 | 80.1 |
| Rochester, N. Y. | 137.0 | 111.4 | 95.5 | 97.5 | 91.0 | 100.5 | 91.9 |
| Salt Lake City, U. | 64.2 | 67.1 | 48.4 | 53.0 | 48.3 | 39.6 | 37.5 |
| Scranton, Pa. | 90.5 | 99.9 | 75.8 | 76.5 | 76.4 | 72.2 | 74.2 |
| Seattle, Wash. | 95.1 | 92.2 | 77.9 | 72.1 | **66.8 | **49.0 | 55.1 |
| Spokane, Wash. | 88.9 | 85.4 | 56.2 | 67.8 | **53.8 | **51.1 | 40.6 |
| Springfield, Mass. | 81.5 | 87.4 | 86.4 | 74.8 | 96.5 | 78.5 | 68.0 |
| St. Paul, Minn. | 110.9 | 111.8 | 104.3 | 116.2 | 113.6 | 106.2 | 99.1 |
| Syracuse, N. Y. | 92.7 | 95.7 | 89.8 | 100.4 | 107.8 | 85.9 | 88.0 |
| Tacoma, Wash. | 94.6 | 113.1 | 112.7 | 105.3 | **103.5 | **46.3 | 39.9 |
| Toledo, O. | 138.8 | 165.3 | 153.9 | 160.7 | 159.7 | 171.4 | 168.1 |
| Trenton, N. J. | ***210.6 | ***192.0 | ***194.0 | ***167.5 | ***151.6 | ***156.6 | ***131.7 |
| Washington, D. C. | 233.6 | 218.1 | 219.1 | 206.9 | 181.7 | 199.6 | 187.4 |
| Waterbury, Conn. | 127.7 | 113.4 | 111.5 | 100.9 | 112.7 | 82.6 | 112.7 |
| Wilmington, Del. | 162.0 | 135.2 | 160.3 | 129.7 | 144.5 | 149.2 | 139.0 |
| Worcester, Mass. | 103.6 | 115.1 | 107.8 | 101.3 | 119.2 | 114.6 | 133.5 |
| Youngstown, O. | 82.8 | 102.5 | 104.0 | 72.3 | 83.5 | 82.3 | 93.2 |

*Transcript of deaths not received.

**Very low rate, due possibly to incomplete registration or to overestimates of population.

***Rates of area in which there is a state insane asylum.

St. Paul as yet has achieved no material reduction but keeps its rate at about 100 deaths per 100,000 population. This is far too high a rate for a disease so notably preventable as tuberculosis, when other cities,

such as Akron, Portland, Salt Lake City, Scranton, Seattle, Spokane and Springfield have been able to keep their tuberculosis death rate below 100 deaths per 100,000 population.

No figures are available for case and fatality rates since deaths from tuberculosis of the lungs are not kept separately from those of other forms of tuberculosis in the annual reports of the City Health Bureau. It is probable that they would not be very valuable even if available, since the case reporting of tuberculosis is notably incomplete.

PNEUMONIA

The prevalence of pneumonia, while not as great in St. Paul as in some other cities, especially in Atlantic coast cities where climatic conditions are a potent factor, is still large enough to afford an opportunity for further preventive work. Table XXI gives comparative data for St. Paul and other cities on the subject of pneumonia mortality.

TABLE XXI.

Showing the Number of Deaths from Pneumonia per 100,000 Population in St. Paul and Other Cities 1910-1916

| City | 1910 | 1911 | 1912 | 1913 | 1914 | 1915 | 1916 |
|--------------------------|-------|-------|-------|-------|--------|--------|-------|
| Akron, O. | 117.8 | 123.1 | 140.1 | 149.4 | 118.3 | 166.3 | 220.7 |
| Albany, N. Y. | 162.4 | 141.6 | 189.7 | 135.8 | 130.1 | 168.0 | 161.3 |
| Bridgeport, Conn. | 167.5 | 143.6 | 163.3 | 184.6 | 191.7 | 204.3 | 357.8 |
| Butte, Mont. | 117.1 | 148.1 | 178.0 | 243.0 | 177.4 | 250.0 | 232.6 |
| Cambridge, Mass. | 182.6 | 152.8 | 150.4 | 170.6 | 160.4 | 146.0 | 159.3 |
| Camden, N. J. | 221.0 | 191.1 | 169.2 | 198.8 | 242.0 | 231.9 | 235.3 |
| Columbus, O. | 135.9 | 121.2 | 119.2 | 113.8 | 114.4 | 126.8 | 155.9 |
| Dayton, O. | 160.0 | 121.7 | 124.6 | 127.8 | 105.8 | 140.2 | 146.2 |
| Denver, Colo. | 135.9 | 151.8 | 123.8 | 109.3 | 136.9 | 162.0 | 122.3 |
| Fall River, Mass. | 196.0 | 193.3 | 201.6 | 260.5 | 233.6 | 200.2 | 243.8 |
| Grand Rapids, Mich. | 82.2 | 117.2 | 49.9 | 66.3 | 75.5 | 95.4 | 70.2 |
| Hartford, Conn. | 207.4 | 240.0 | 176.4 | 226.4 | 205.5 | 217.5 | 300.3 |
| Indianapolis, Ind. | 142.7 | 110.0 | 132.0 | 120.6 | 140.9 | 142.3 | 141.8 |
| Jersey City, N. J. | 179.7 | 198.9 | 173.4 | 191.2 | 167.7 | 193.6 | 184.4 |
| Kansas City, Kans. | 182.6 | 158.7 | 140.4 | 166.9 | 131.5 | 202.4 | 113.6 |
| Kansas City, Mo. | 146.4 | 148.7 | 110.5 | 115.4 | 117.8 | 156.3 | 122.5 |
| Lawrence, Mass. | 235.7 | 197.2 | 202.0 | 147.6 | 179.5 | 210.8 | 166.1 |
| Louisville, Ky. | 152.5 | 125.3 | 128.2 | 146.6 | 149.3 | 137.1 | 146.9 |
| Lowell, Mass. | 196.7 | 147.7 | 150.8 | 142.9 | 150.4 | 183.7 | 178.4 |
| Memphis, Tenn. | 196.3 | 197.7 | 178.9 | 165.3 | 155.7 | 136.9 | * |
| Minneapolis, Minn. | 118.4 | 113.4 | 91.5 | 102.6 | 121.7 | 111.8 | 111.4 |
| Nashville, Tenn. | 218.9 | 222.6 | 173.0 | 151.1 | 173.2 | 152.6 | * |
| New Bedford, Mass. | 186.5 | 180.2 | 164.9 | 206.0 | 178.9 | 184.0 | 191.3 |
| New Haven, Conn. | 208.0 | 212.1 | 225.4 | 188.1 | 193.1 | 198.5 | 225.1 |
| Oakland, Cal. | 103.1 | 107.2 | 116.5 | 119.3 | 86.3 | 93.3 | 75.5 |
| Omaha, Neb. | 159.8 | 172.0 | 146.6 | 119.8 | 129.1 | 143.4 | 173.4 |
| Pateron, N. J. | 161.6 | 137.1 | 172.1 | 158.8 | 148.9 | 147.4 | 197.2 |
| Portland, Ore. | 76.4 | 76.8 | 58.0 | 75.4 | 60.2 | 54.2 | 52.5 |
| Providence, R. I. | 194.7 | 166.0 | 167.9 | 159.5 | 161.6 | 166.8 | 174.1 |
| Reading, Pa. | 127.6 | 76.4 | 92.1 | 105.3 | 90.9 | 83.6 | 160.3 |
| Rochester, N. Y. | 131.5 | 116.2 | 148.9 | 155.1 | 138.7 | 117.6 | 121.6 |
| Salt Lake City, U. | 129.4 | 103.2 | 119.6 | 86.1 | 99.3 | 96.9 | 118.4 |
| Scranton, Pa. | 207.8 | 200.6 | 200.2 | 208.5 | 234.9 | 199.2 | 190.0 |
| Seattle, Wash. | 81.4 | 53.0 | 51.5 | 64.4 | **54.0 | **56.8 | 40.2 |

(For meaning of asterisks in Table, see p. 27.)

| City | 1910 | 1911 | 1912 | 1913 | 1914 | 1915 | 1916 |
|-------------------------|----------|----------|----------|----------|----------|----------|----------|
| Spokane, Wash. | 110.7 | 123.6 | 59.5 | 70.9 | **61.2 | **54.5 | 49.9 |
| Springfield, Mass. | 184.2 | 156.5 | 125.4 | 152.6 | 154.2 | 162.8 | 192.6 |
| St. Paul, Minn. | 97.9 | 92.6 | 77.3 | 81.2 | 112.8 | 110.7 | 80.5 |
| Syracuse, N. Y. | 152.1 | 119.6 | 141.4 | 185.0 | 139.3 | 119.3 | 134.3 |
| Tacoma, Wash. | 85.1 | 76.9 | 57.4 | 71.9 | **60.9 | **63.8 | 54.1 |
| Toledo, O. | 127.6 | 113.9 | 111.5 | 89.8 | 111.3 | 121.4 | 156.5 |
| Trenton, N. J. | ***228.0 | ***217.0 | ***182.2 | ***219.2 | ***220.0 | ***210.6 | ***302.0 |
| Washington, D. C. | 174.0 | 164.5 | 141.2 | 129.9 | 131.0 | 176.8 | 164.3 |
| Waterbury, Conn. | 191.6 | 141.1 | 126.8 | 186.8 | 143.0 | 167.6 | 165.6 |
| Wilmington, Del. | 223.6 | 217.5 | 169.2 | 167.1 | 179.2 | 210.4 | 241.9 |
| Worcester, Mass. | 190.1 | 164.3 | 189.3 | 174.4 | 171.8 | 186.3 | 230.2 |
| Youngstown, O. | 249.6 | 229.0 | 229.9 | 273.5 | 217.7 | 226.8 | 303.5 |

*Transcript of deaths not received.

**Very low rate, due possibly to incomplete registration or to overestimates of population.

***Rate of area in which there is a state insane asylum.

The rates for St. Paul, 97.9; 92.6; 77.3; 81.2; 112.8; 110.7 and 80.5 respectively for the years, 1910; 1911; 1912; 1913; 1914; 1915 and 1916 not only do not show a gratifying decrease, but in fact except for the year 1916 tend in the opposite direction. It would seem that the comparatively high rates for the years 1914 and 1915 are the results of a temporary and not permanent increase in the prevalence and virulence of the disease, since 1916 shows a drop to 80.5.

We have, of course, no figures for cases of pneumonia and their fatality, since pneumonia is not a reportable disease. Except for the two years, 1914 and 1915, St. Paul stands well at the head of the list of those with comparatively low pneumonia mortality, and it is to be hoped that this position will be maintained and improved upon.

The foregoing analysis of the vital statistics of St. Paul shows conditions which are on the average good. But any claim to absolute supremacy over all other cities in the standard of health is unfounded. Not only does St. Paul *not* have the lowest rate of all cities as is currently believed in this city—in the year 1916 when St. Paul's death rate from all causes was 11.3, Oakland, Portland, Seattle and Spokane had the lower rates, 10.5, 8.0, 7.0, and 7.0 respectively—but in certain specific diseases also St. Paul frequently shows conditions considerably worse than in a number of other cities. For instance, there are 13 cities with consistently lower death rates from scarlet fever than St. Paul, 3 cities with lower rates from diphtheria, 3 with lower rates from typhoid fever, and 7 cities which keep their mortality rate from tuberculosis under 100 per 100,000 population, while the rate for St. Paul hovers above that figure.

Since these are all cases of communicable disease markedly susceptible to control, St. Paul should not be content until conditions are improved to at least the standard set by other cities. Improvement should not be difficult with such natural aids to healthfulness as the city has in conditions of climate, and of water supply, but it is to be feared that the city has been relying heretofore too much on these natural factors, and perhaps transferring some of the credit for them to the Bureau of

Health. From another source also the Bureau gets credit which does not rightfully belong to it, for while infant mortality in St. Paul has been decreasing steadily year by year and the consequent lower figures make a good showing in the annual reports of the Bureau of Health, yet it is obvious that since the city does practically no systematic work for infant mortality reduction, if any one body is to receive the credit it is the Baby Welfare Association.

Sanitation

Housing

Actual Conditions and Legislation

During the spring and summer of 1917 a survey of the housing conditions in St. Paul was made by the Housing Commission of the St. Paul Association and the Amherst H. Wilder Charity under the direction of Carol Aronovici, Director of Social Service of the Amherst H. Wilder Charity. Mention should be made of the general conditions found by the survey in so far as they have a bearing upon the health of the community, but it is not possible to single out items of striking and clear-cut importance, for as Dr. Aronovici says in his introduction, "It must be stated at the outset that the housing evils in this city are no worse and no better than the evils found in most of the rapidly growing cities of this country." *

The survey, of necessity, was confined to a limited area but inasmuch as it covered the homes and living conditions of over 21,000 people in districts of the city selected because they were typical of various aspects of the housing problem, it is evident that what facts were ascertained have by no means small significance in a study of the health conditions of the city. Therefore it may not be out of place to quote here some of the general conclusions at which Dr. Aronovici arrived in making the survey and interpreting the facts thereby brought to light, and which are given below : **

"The Health Department is unable to enforce existing laws for reasons of shortage of appropriation and inadequate inspection force."

"Structural defects of new buildings and the low standard of construction prevalent in the earlier days of the development of St. Paul are more largely responsible for bad housing than the habits and standards of life of the people."

"More than one-third of the population whose homes were studied belong to the classes generally designated either as American or of nationalities with high standards of living."

"There is no serious problem of room congestion in the homes of the city of St. Paul, at least in the districts examined. A few cases of ex-

*Housing Conditions in the City of St. Paul. Report presented to the Housing Commission of the St. Paul Association. By Carol Aronovici, Ph. D., Director of Social Service, Amherst H. Wilder Charity.—p. 7.

**Housing Conditions in the City of St. Paul, p. 7.

cessive crowding were found, but they were by no means typical of the general conditions."

"There is a superabundance of toilets, the use of which is shared by from two to ten families with the result that a disproportionate amount of irresponsible use, disrepair and general neglect were found."

"The lodger evil which is so intensely difficult to control in eastern cities is very much less acute in St. Paul. There is, however, a most serious problem of housing the single men and single women, which is coupled with the difficulties to control the rooming houses and hotels of the city. The latter involves a moral as well as a health problem."

"Almost sixteen per cent. of the land area in the sections studied is unoccupied. The assessments show low values which suggest the desirability of securing open spaces for much needed park and playground purposes."

"The poor arrangement of the lots, the unscientific placement of buildings, the uncontrolled heights of buildings and absence of regulation regarding distances between walls, have caused a disproportionate amount of bad lighting and ventilation and many dark rooms, characteristic of the older slum areas of the city of New York."

"The failure to provide a city-wide zoning system has done considerable damage to valuable property which might otherwise have been protected. The present zoning system is hardly adequate to meet the needs of the City of St. Paul."

In regard to housing legislation in St. Paul, the above quoted survey was the means of bringing into existence the comprehensive and up-to-date Housing Ordinance which was passed by the City Council in March, 1918. All that is necessary now to insure good housing is the proper enforcement of the law, and it is to be hoped that this will be made possible through sufficient funds for adequate sanitary inspection.

City Water Supply

St. Paul is favorably situated in relation to its water supply. The sources are a chain of lakes and artesian wells. The chain is composed of Peltier Lake, Centerville Lake, Pleasant Lake, Sucker Lake and Lake Vadnais, with a terminal at Lake McCarron, and a pumping station for the high service water. The supply is owned and operated by the City. Analyses are made by the City Chemist every two weeks. Until recently the samples were taken weekly but there was so little variation that they are taken at less frequent intervals now.

According to the City Chemist the water is not very hard and has never shown any contamination chemically. The bacteriological analyses are made by the bacteriologist in the Health Department. Two samples are taken each week, one from the terminal chamber and one from the water used in the residential section. The results as a rule have been good. Of course, the bacterial counts run higher during the summer

months, but at no time has there been found any contamination—naturally enough, since there have never been water borne epidemics in St. Paul. For purifying treatment of the water, copper sulphate has been used as often as necessary, most generally in the summer months, and this work has been done under the direction of the Botanical Department of the University of Minnesota. Since November 1917 two motor driven screens have been in operation in the building adjacent to the terminal chamber at McCarron Pumping Station, for the elimination of vegetative matter. The particular kind of screen here used is more or less of an experiment, but from all reports a successful one. The construction is very simple—a cylinder closed at one end so that the water let in at the open end is forced through the fine meshed screen forming the cylindrical walls. As the screen revolves by the motor attachment it is cleaned by sprays at the top. The two screens have been in operation for over a year and have given entire satisfaction.

According to the annual report for 1917 of the Board of Water Commissioners, the percentage of service metered is 91.2, while the percentage of consumption metered is 64. This would seem to indicate that altho the unmetered service represents only 8.8% of the total number of buildings served, the total amount of water consumed by this service is 36% or more than a third of the total consumption of water in the City of St. Paul. This assuredly is a disproportionately large fraction of the total, and therefore presents a strong argument for metering all service. Such high percentage of unmetered consumption very probably accounts for the high per capita consumption. According to the authors of the Health Survey of New Haven, Conn., "Any excess over a consumption of 50-60 gallons per capita is always found to be due to waste through leaking fixtures and leaking street mains, and the installation of meters soon leads to the detection of such waste and its elimination without any limitation on legitimate use."* St. Paul's consumption in gallons per day to each consumer is 73, and while that is by no means as high as New Haven's 180, yet the excess of 13 gallons per day to each consumer over the maximum of 60 mentioned in the New Haven Survey can in all probability be charged to the 8.8% unmetered service through which is consumed 36% of the total water used.

The above mentioned report of the Board of Water Commissioners also shows approximately the proportion of the population served. Its figures are as follows:

Estimated population 276,000.

Estimated population on pipe lines 227,000.

Estimated population supplied 217,000.

According to these figures there are 49,000 people, or 17.75% of the total population not on pipe lines and there are 9,500 people, or 3.44% of the total population who are on pipe lines but not taking advantage of

*Health Survey of New Haven. A report presented to the Civic Federation of New Haven by Charles-Edward Amory Winslow, James Cowan Greenway and David Greenberg of Yale University. Yale University Press, 1917.

City water, making a total of 58,500 people or 21.9% of the whole population of St. Paul who are not using City water. This includes those having individual artesian wells, for as stated in the report "The City of St. Paul supplies only about 60% of the total water consumed within its limits. The remaining 40% of the demand is supplied by individual artesian wells, for the greater part supplying what would constitute the larger consumers."* The fact that large concerns prefer to have their own water supply is not questioned, neither is the advisability of such a course, but even with allowance for this legitimate lack of use of city water, the fact cannot be ignored that there are some people without city water who are greatly inconvenienced or even suffering without it. Without a special survey of wells and springs which at this time is not feasible, it is impossible to estimate even approximately the number of wells and springs now in use and the proportion of the population served by them.

That there are such conditions, in some measure at least, is attested by pertinent facts brought to light in Dr. Aronovici's Housing Survey. He found in the area he surveyed that 18.36% of the total number of houses were without City water, and that in one district the people depended entirely upon wells and springs, and these were not adequate in number.**

Sewerage

St. Paul's sewerage system is for all normal conditions entirely adequate. It is true that in storms which are somewhat heavy and of long duration, the sewers which are of the "combined" variety to take care of both household sewage and storm waste, become clogged, but a few hours are sufficient to clear them out again. All sewers with one exception empty into the Mississippi River in about twenty open outlets. This exceptional case consists of a storm sewer alone which empties into Lake Cosy just above Lake Como. The flow of sewage is accomplished almost entirely by gravity, for which reason radical changes or improvements, such as the installation of a purifying plant for instance, would be decidedly difficult, if not impractical to undertake, inasmuch as such a proceeding would necessitate the division of the "combined" system and consequent inadequacy of the flow by gravity. Fortunately there seems to be no real necessity for radical changes since for normal demands the "combined" system is adequate, and since in spite of open outlets to the river, no indications of a need for purification have appeared. The river water is not used for drinking purposes, and as far as being a nuisance is concerned it undergoes the process of self purification of all running waters. The only possible danger arising from river pollution lies in the fact that the Harriet Island Public Baths are near at hand. It would seem advisable that the water where the baths are located be tested for pollution, but no evidence of such tests was found.

*Annual Report of the Board of Water Commissioners for 1917., p. 23.

**Housing Conditions in the City of St. Paul, pp. 36, 37.

Out of a total of 829.68 miles of streets there are 422.27 miles of sewerage, or 50.89%. However, it is impossible without making a special and detailed survey of the sewerage conditions and facilities to discover just what proportion of the population of the city is having the advantages of city sewerage. We know that there are approximately 34,000 sewer connections in the city, which means when we multiply by five to the family and add on a few for the office buildings, that probably two-thirds of the total population are using the City sewers. That there are many private privies and cisterns, however, is a well known fact to anyone at all familiar with the conditions and especially to persons who have read the previously mentioned Housing Survey in which Dr. Aronovici states that 28.69% of the houses he studied were without sewers and that 30.37% of the total number of toilets were located in the yard.* Of course, we must remember that since his figures apply only to a limited area and that the one in which examples of the worst conditions might be expected to be found, the percentage of houses depending upon cisterns and yard privies out of the city's total number of homes would not be nearly as great; but with all due consideration of this fact it is obvious that St. Paul has an immediate health problem in the elimination of such drags upon her sanitation as the presence of private cisterns and privies is bound to be.

Garbage and Refuse Disposal

The business of garbage collection and disposal was originally in the hands of the Health Department, but the provisions of the new charter removed it to the Department of Public Works, the change taking place July 1, 1914. At present collection is made partly by the City, and partly by private collectors paying an annual \$5.00 license fee. There are 50 licensed collectors, and 30 municipal teams assigned to garbage collection, and also 3 municipal teams for the collection and removal of dead animals. All the garbage, whether municipally or privately collected is fed to hogs, the municipally collected portion being sold to hog farms just outside of the city limits. Collections are made twice a week in summer and once a week in winter. There are 11 inspectors to see that the rules are complied with, and to make arrests if their educational work (verbal instructions and printed matter on garbage collection) does not produce results.

The cost of garbage collection to the City was \$44,800.43 for the year 1917. The receipts from the sale of garbage and hides of dead animals and from license fees amounted to \$5,183.53. For the previous year, the total expenditure was \$43,902.13 and the receipts \$7,587.17. This decrease in the receipts is undoubtedly due to the present patriotic attempts at food conservation as is stated in the section on garbage disposal in the 1917 annual report of the Department of Public Works.**

*Housing Conditions in the City of St. Paul, pp. 25 and 36.

**Annual Report of Commissioner of Public Works, 1917, p. 75.

In the same report the Commissioner of Public Works also says "In the matter of garbage disposal some method must be adopted which will conserve all the valuable elements, such as grease, fertilizer, etc. We are being educated in food conservation and our ideas in regard to food wastes are rapidly changing. I am fully convinced that the garbage reduction method is the one that should be adopted here."* Since St. Paul is already paying a moderately large sum for her garbage disposal and not getting the most satisfactory results from an economic and sanitary point of view, it seems only reasonable to suppose that the City will be willing to pay a slightly larger sum in order to have an up-to-date system suited to the city's needs.

There is no routine form of refuse disposal in St. Paul. Household-ers must pay the city scavengers to haul ashes and rubbish to the city dumps which are seven in number, and patrolled by laborers who level down the refuse as it is unloaded to prevent too much unsightliness and also the depositing of insanitary articles, such as garbage or dead animals. When we consider how valuable ashes and unburnable rubbish would be if regularly collected by the City, and used to build up the Upper and Lower Levees now comparatively worthless because of periodical floods, it seems strange indeed that St. Paul has been so lax and irresponsible in regard to refuse disposal.

*Annual Report of Commissioner of Public Works, 1917, p. 5.

Health Agencies

Public Health Agencies

Relation of Health Bureau to General City Government

The new Charter of 1914 gave to St. Paul the Commission form of government, under which there are six Commissioners,—the Commissioner of Finance, Commissioner of Public Works, Commissioner of Public Safety, Commissioner of Education, Commissioner of Parks, Playgrounds and Public Buildings, and the Commissioner of Public Utilities, all of whom are elected to the Council by the people and appointed to their respective departments by the Mayor. The Department of Public Safety is the one in which we are immediately interested, since what is commonly known as the Health Department is technically the Bureau of Health of the Department of Public Safety. Besides the Bureau of Health there are four other bureaus in this Department, those of Police, Fire Protection, Police and Fire Alarm Telegraph, and General Administration. The Commissioner of Public Safety is ex-officio the Chief Health Officer of the City.

DUTIES AND POWERS OF BUREAU

The general duties and powers assigned to the bureau of Health by the new Charter are contained in the following quotation from that instrument:—

“General Health Powers. Sec. 373. The council on recommendation of the said commissioner shall, by ordinance, give the said commissioner and said health officer such powers and impose upon them such duties as will enable them fully to protect the public health and the sanitary condition of the city. Such health officer shall also be the sanitary adviser of all city officers. Said commissioner, by and through the bureau of health shall have the power of abating any nuisance upon such notice and by such methods as the council, by ordinance shall prescribe; shall have the power of controlling or taking measures to control all contagious, infectious diseases within said city; to placard all infected houses and buildings; shall have full charge of such small-pox or detention hospitals as said city may establish or has established; and in case of pestilence or epidemic, actual or impending, take such measure as he may in good faith deem necessary to insure the public health or safety. Said commissioner shall take such measures as in the opinion of the health

officer may be necessary to prevent the spread of small-pox or other contagious and infectious disease; he shall have the power to quarantine, placard and disinfect any house or building or order it to be done; close the same until so disinfected; and subject to the approval of the council, he may order all boats, trains, and other conveyances bringing persons or goods to the city to be quarantined and compel persons or corporations operating the same to take such steps as may be necessary to protect the public health. It shall be the duty of said commissioner to see to it that all persons so quarantined shall receive proper medical attendance, nursing, food, and quarters; shall decide upon the advice of the health officer when persons so quarantined shall be discharged therefrom and what precautions shall be taken before their discharge for the protection of the public health; and shall keep at such quarantine such police force necessary to enforce the orders of said commissioner and the health officer. Said commissioner with the approval of the council shall have power to establish, equip and maintain such quarantine stations, hospitals and other buildings as may be necessary for the preservation of the public health. He shall provide proper blanks and forms for all returns and data for vital statistics, and shall secure a proper registry of births, deaths and other necessary statistics within said city. He shall cause to be vaccinated free of charge and give certificates thereof to all persons applying therefor. Said commissioner shall have the power of abating and correcting any condition considered by said health officer to be detrimental to the public health and the sanitary condition of the city. He shall enforce all state laws relating to the public health and shall have full sanitary control of all places and institutions within the city and may require from all persons in administrative control of hospitals, asylums, dispensaries, prisons, schools, theaters and other places of amusement or recreation to make such reports as may aid in making safer the public health. It is hereby made the duty of every physician and midwife within said city to report, in such manner as the commissioner may direct, all births and with such other facts deemed pertinent by said commissioner, and all physicians shall register and report in such form as may be prescribed by said commissioner, all deaths of which he has knowledge, within twenty-four hours after he has learned of said deaths. The coroner shall report to said commissioner within forty-eight hours after it is completed the result of any inquest. All physicians shall report in such manner as the said commissioner shall direct all cases of contagious diseases. Said commissioner with the approval of the council shall make such regulations and rules as may be necessary for the interment and removal of all dead bodies. Said commissioner shall have jurisdiction over all lakes and water courses in Ramsey county to the same extent as though located within the city.

The council by proper ordinances shall make effective and define in detail all powers and duties hereinbefore imposed and granted, and

such other powers and duties as may be necessary to conserve the public health.

All persons whatever violating the provisions of the charter or ordinances enacted in pursuance thereof, all rules and regulations of the bureau of health concerning the public health and sanitation, or who shall interfere with any health officer in the performance of his duties shall be guilty of a misdemeanor and shall be subject to a fine not to exceed one hundred (\$100.00) dollars or imprisonment not to exceed ninety (90) days, or both."

"Removing nuisances. Sec. 374. The council, by ordinance, may empower the said commissioner to remove and abate or cause the same to be removed or abated, any nuisance, any substance, matter, omission or thing, which said commissioner may regard as dangerous to the health or as impairing the sanitary condition or good order of the city, being or lying in any street, alley, water, excavation, building, erection, place, lot or grounds and may designate a place to which the same may be removed. He shall serve a notice on the owner, occupant or agent of any lot, building or premises aforesaid ordering the things aforesaid to be removed therefrom within such time as the council shall by ordinance prescribe, and that in case of non-compliance the same will be done by the said commissioner at the expense of the owner of said premises. The said commissioner shall after such time has expired proceed to remove such things aforesaid, determine the cost thereof, charge the owner and the premises therewith and not later than the 1st day of October of each year certify to the County Auditor the amounts so charged against such premises, lots and places together with a description of the premises and the supposed owner thereof as nearly as practicable and such charge shall be collected and collection enforced in the same manner as taxes against the said premises. Such charges shall be a perpetual lien on said premises until paid. Provided, however, that where no owner, occupant or agent can be found or the same is unknown, then said commissioner may proceed without such notice."

"Employees—Policemen. Sec. 375. Every officer and employe of the bureau of health, in the performance of any duty imposed by law, this charter, ordinances in pursuance thereof, or any order or direction of the commissioner or the health officer shall have and be vested with all the powers of a policeman."

In addition, the Commissioner of Public Safety as Chief Health Officer of the city is given control and supervision of the public baths situated on Harriet Island,—

"In charge. Sec. 376. The commissioner of public safety, as chief health officer of the city, shall manage, control and supervise the public baths on Harriet Island and the grounds, buildings and institutions connected therewith and adjacent thereto."

"Appoint Employes. Sec. 377. He shall appoint and remove, subject to the charter and ordinance in pursuance thereof, all such assist-

ants and employes and at such compensation as the council by an administrative ordinance shall provide and prescribe."

"*Rules.* Sec. 378. With the consent of the council, by administrative ordinance, he shall make and enforce rules and regulations to govern the use of such baths and the buildings and grounds appertaining thereto."

The inspection of food, hotels and restaurants comes also under the jurisdiction of the Commissioner of Public Safety:—

"*Food Inspection—Hotels and Restaurants.* Sec. 379. The commissioner of public safety shall administer and enforce all laws and ordinances relating to the inspection of milk, meats and other food substances, and also all laws and ordinances relating to the inspection of hotels and restaurants, tenements and lodging houses. The council shall have power by ordinance to make effective the duties in this section prescribed, and to compel by proper penalties all dealers to conform to such regulations as shall fully protect the public health."

Furthermore according to Section 380. "The commissioner of public safety shall supervise and control the maintenance and operation of all public comfort stations; appoint and remove all such attendants and employees therefor as the council by an administrative ordinance may provide and at such compensations as it may prescribe, and with the consent of the council make, prescribe and enforce all rules and regulations for the orderly public use thereof." And altho very obviously the charter makes no stipulations as to which of the five divisions of the department of public safety shall be the Commissioner's instrument for supervising the public comfort stations, the Health Bureau is the one to which this work has been assigned.

In any analysis or discussion of the powers of the Health Department as set forth above in the quotations from the new Charter, it must be admitted at the outset that there are various ambiguities, discrepancies and inconsistencies in the wording used. Attention was called to this matter by Dr. G. B. Young of the United States Public Health Service in his study of public health conditions in St. Paul, and since his findings still hold true in this respect it seems decidedly apropos to quote from his report as follows:—

"It is difficult to escape the conclusion that when the charter was prepared section 373 was obtained by selecting sentences, clauses, or ordinances from the law then existing in St. Paul or elsewhere and consolidating them without consideration of their coherency and without reference to other charter sections limiting or even nullifying the provisions of this section. For example: The commissioner 'shall have the power to quarantine, placard, or disinfect any house, or order it to be done,' but he 'shall decide upon the advice of the health officer, when persons so quarantined shall be released.' In other words, the commissioner can impose quarantine without consulting the health officer, but he can not

terminate it without the latter's approval. Other contradictory provisions might be cited.

There is similar confusion in the language relating to ordinances and rules. For example: Physicians must report contagious diseases 'in such manner as the said commissioner shall direct,' which implies the power to enforce rules of his own making, and yet later in the same section it is expressly provided that the council shall 'by proper ordinance make effective and define in detail all powers and duties hereinbefore imposed and granted.'

In the penalty clause reference is made to 'the provisions of the charter and the ordinances enacted in pursuance thereof' and to 'rules and regulations of the bureau of health,' evidently having in mind in the latter case the idea that the bureau of health would establish its own administrative regulations and rules of procedure.

Yet the charter (sec. 116 p. 27) says, 'Every act or bill which shall * * * * prescribe * * * * the procedure for the performance of any administrative act, or promulgate any rule or regulation * * * * shall be expressed and done under administrative ordinance.'

Section 375 gives full police power to all officers and employees of the bureau of health.

Section 379 provides that the commissioner of public safety shall 'administer and enforce all laws and ordinances relating to the inspection of milk, meat, and other food substances and also laws and ordinances relating to the inspection of hotels, restaurants, tenement and lodging houses'—all this in direct contradiction of section 432 (as above) which says the commissioner of parks, playgrounds, and buildings, 'shall enforce all laws of the State and all ordinances of the city of St. Paul applying to buildings within said city whether relating to their planning, construction, maintenance, repair, fire protection, or any other matter.' ” *

Unquestionably the provisions for health administration contained in the new Charter are not the clearest and best defined possible and this, of course, means that St. Paul must labor under difficulties in achieving efficient health service. However, what it can do in the way of stretching the provisions of the Charter to its needs, it does. For instance in the case of the contradiction cited above in assigning the inspection of hotels, restaurants, tenements and lodging houses to both the Commissioner of Public Safety and to the Commissioner of Parks, Playgrounds and Public Buildings, altho technically there is a chance for overlapping of work and consequent friction, practically it works out that each department takes the responsibility of inspection of those features that are of particular interest to it—food and sanitation in the case of the Health Department and structural condition in the Department of Parks, Playgrounds, and Public Buildings. Certainly it is admirable that the Bureau

*Public Health Reports January 12, 1917. Public Health Administration in St. Paul, Minn., by G. B. Young, Surgeon United States Public Health Service, pp. 49 and 50.

of Health has done all that it has in smoothing out practically the technical difficulties that the poorly constructed health provisions of the Charter have put in the way, and it is to be hoped that all the elasticity possible will be used in construing the Charter since at best that instrument does not aim for the broadest and most progressive health work to be desired.

Organization of Bureau

FUNCTIONS AND QUALIFICATIONS OF EMPLOYEES

The final responsibility for the work of the Bureau rests on the Health Officer, who according to the stipulations of the Charter must be a licensed physician of not less than five years' practice. There is also a Deputy Health Officer whom the Charter requires to be a licensed physician of not less than three years' practice. His duties, other than seconding the work of the Health Officer and acting for him in case of the latter's absence or incapacity, are in the control of communicable diseases. The remaining members of the Bureau of Health staff are qualified for their positions by passing civil service examinations and their several titles with corresponding duties are as follows:

Chief Inspector who is in charge of the office and the field forces, who at times may himself do special field work and who looks after the publication of the monthly bulletin.

Senior Clerk Typist who has charge of checking births and deaths, entering them in records, and who keeps all records except those of contagious diseases.

Stenographer who takes care of all communications, records of contagious diseases and reporting of same to library board, school board and private institutions.

Bookkeeper who keeps the accounts and who is solely in charge of all requisitions.

Statistician who copies birth and death certificates, issues burial permits and certified copies of births and deaths.

Bacteriologist who makes examinations for the presence of diphtheria, tuberculosis, typhoid and rabies, and who analyzes samples of water, both drinking water and that from swimming pools, and milk and cream.

Laboratory Assistant who helps the bacteriologist and keeps the records in the laboratory.

Laboratory Helper who washes the instruments and utensils in the laboratory.

Food Inspector, three Meat Inspectors, Dairy Inspector, Live Stock Inspector, fourteen Sanitary Inspectors, Superintendent of Small-pox Hospital,—all of whose special duties will be elaborated later. *Superintendent of Harriet Island Public Baths.*

COORDINATION OF FACTS THRU OFFICE RECORDS AND TABULATIONS

The City Bureau of Health has already had various suggestions made to it regarding the improvement of its record keeping inasmuch as not only Dr. Young in his Survey of the department advised certain changes and additions, but owing to the facts disclosed by his report the St. Paul Association was prompted to prepare a set of forms, the use of which was in the opinion of that body necessary to the highest efficiency of the work of the City Bureau of Health.

None of the forms suggested by the St. Paul Association are in use now in the Health Bureau, and altho the department made a considerable number of changes as a result of Dr. Young's Survey, the changes and additions in the system of record keeping were not so great that there is not still room for improvement. In view of this fact we have compared the record blanks now in use in St. Paul's Health Bureau with those used by the Health Departments of over forty other cities of approximately the same population. As a result of this comparison, by culling out the valuable blanks of other cities which St. Paul does not use, and eliminating those which are not necessary in this city or which are excelled by similar blanks used here, we have drawn certain conclusions regarding improvements needed in the record keeping system of St. Paul's Bureau of Health, and they are given herewith:

Record blanks for the work of food-stuff inspection.

St. Paul has comparatively few blanks for recording general food inspection. (Milk and dairy inspection we shall consider separately). There is a memorandum score slip for use in places where foods are prepared for sale or sold which is used for meat and general food inspection alike, a daily report blank for each of those two divisions and a file card used in both,—these comprising all the blanks used in this division. A monthly report blank of inspections made—a compilation of the daily reports—would be of value from the point of view of departmental efficiency as well as that of statistics. At the present time no food-handling places except hotels and restaurants are licensed, which explains the lack of license certificates. Regulations should be made, however, for such licensing. It might well be done under one general form to include all places dispensing food—grocery stores, meat markets, confectionery stores, soda fountains, etc. The scoring of food handling places which is now done on a limited scale because of inadequate force and on one score card illy adapted to diversified uses, should be done in greater quantity and recorded on separate cards whenever the material warrants such separation.

For recording the data acquired in milk and dairy inspection St. Paul's blanks are good as far as they go but do not go far enough to

cover all problems arising. There is a file card for milk analysis in the bacteriological laboratory, an analysis card for each dairy or producer, which seems to be much of a repetition of part of a larger card used for each producer, having space for the score record, test record, analysis record and disposition of product, and daily report of tuberculin testing.

Cards found in use by other cities which St. Paul would do well to incorporate in its own system are as follows:—

Monthly report of inspection of dairies and live stock.

Milk complaint card.

Rejection tag for milk can.

Producer's and retailer's certificate or a milk permit.

Order to improve dairy conditions.

Milk inspection card at train or station.

Bottling plant score card.

License for milk dealers and storekeepers selling milk, and persons conveying milk for sale.

Order to have cows ready for tuberculin test (to be sent not sooner than 5 days before examination).

File card for tuberculin test.

File card for physical examination of cattle. (At present no such examination other than the tuberculin test is made by the city, but one should be inaugurated and results kept on record.)

Notification to milk man of presence of communicable disease.

Dairy index to contagious diseases.

Veterinarian's certificate.

Notice of violation of tuberculosis test.

Record blanks for Sanitary Inspection.

St. Paul has very few blanks for the recording of sanitary data—only a daily report for the sanitary inspectors, a daily report for the hotel inspector, application for hotel license, file card for complaints, and report of nuisances inspected.

A monthly report both for the sanitary police and for the hotel inspector would be an important addition to the daily reports, that for the sanitary police to include a tabulation of the nuisances inspected. Regarding the hotel inspection some attempt should be made to co-ordinate the records of the City with those of the State in this department. Also the score sheet compiled by the City Hotel Inspector but not used because of inadequate inspection force might well be used as the basis for separate score cards for hotels and restaurants if a large enough force could be provided so that the work of scoring could be adequately done.

St. Paul has no system of sanitary inspection of theaters and in consequence no score card or record of the existing conditions in such public gathering places is available. The importance of such a system of inspection and recording can hardly be questioned.

Altho the importance of sanitary inspection of houses, particularly lodging and tenement houses, can hardly be over emphasized, St. Paul has no system for recording such work. Inasmuch as the data collected in the course of any inspection is of considerable value, especially when court litigations are to be resorted to, it is essential to have proper blanks in

use, and accordingly it is suggested that such cards as are used in the cities of New York, Boston, Chicago, Cleveland, Minneapolis or some other of the numerous cities in which such inspection system is in use be provided, with such changes as local conditions require. Such a record card should contain provisions for the recording in addition to the actual conditions found, adequate data regarding the frequency of inspection, action taken and results accomplished.

Other blanks used in the cities under comparison which would help the sanitary division of St. Paul's Health Bureau are as follows:—

- Notification to have weeds cut.
- Application for analysis of water from well.
- Notification that well water is unsafe.
- Application for license and license to maintain stable.
- Stable registration card.
- Office record of ownership of stables and number and kind of animals therein.
- Application for permit and permit to remove contents of cesspool or vault.
- Report of cause of delay of abatement by inspector.
- Record of sanitary conditions of barber shops.
(Chiropodists and Manicurists.)
- Record of laundry inspections.
- Order of abatement of nuisance.

Record blanks for Communicable Disease Control.

St. Paul has a goodly list of record blanks for use in communicable disease control. They are as follows:

Tuberculosis Division:—

- Card for physician's report of case.
- Case card for office file.
- Nurse's daily report.
- Card for street index showing living cases, deaths, removals and renovations designated by different colors.
- Sheet for complaint, and inspector's report of same.
- Letter for following up doctor's report.
- Letter to physician signing death certificate for unreported case of tuberculosis.
- Dispensary examination file card.
- Negative sputum card in Bacteriological Laboratory.
- Positive sputum card in Bacteriological Laboratory.
- Records of sputum examinations.

All Other Diseases:—

- Card for reporting case of reportable disease.
- Loose leaf disease record as reported by physician.
- Medical inspector's daily report.
- Daily list of contagious diseases.
- Monthly report of contagious diseases by wards.
- Epidemiological report on typhoid.
- Social history sheet for small-pox patient.
- Bacteriological laboratory card for examination of diphtheria culture. (Sent to physician.)
- Bacteriological laboratory card for examination of diphtheria culture. (Sent to City Hospital.)
- Bacteriological report of diphtheria examination (Sent to Health Dept. and Dept. of Hygiene.)
- Bacteriological card for examination for typhoid (if positive sent to City Hospital.)

- Bacteriological card for examination of rabies.
- Bacteriological card for any examination sent to sender of sample.
- Bacteriological card for special examination (all unclassified.)
- Bacteriological record of Widal examinations.
- Certificate of freedom from communicable disease.
- Certificate of vaccination (should be changed to be given only for successful vaccinations.)

The list of blanks used in the control of tuberculosis seems very complete. Some additions might be made to the cards and forms for recording work in other diseases, however, as a study of those used in other cities shows. Such additions might be as follows:—

- Office record for each communicable disease (typhoid, diphtheria, scarlet fever, infantile paralysis, cerebrospinal meningitis, etc.)
- Report to library of books in house where there is contagious disease.
- Card for office file for each of contagious diseases.
- Card reporting quarantine.
- Permit to attend school for child living in rooms outside of quarantine.
- Card to employer to exclude from work person living in quarantined rooms.
- Agreement of employe to reside outside quarantined rooms.
- Permit to employe to enter quarantined premises.
- Card from quarantined person reporting to Health Bureau recovery from disease and readiness for removal of quarantine.
- Office card for release of quarantine.
- Order for disinfection.
- Certificate of discharge from small-pox hospital, or of release from quarantine of exposed person.

Record blanks for Vital Statistics:

The report and record blanks used in the division of vital statistics cover practically all necessities. They are as follows:—

- Record of birth (city.)
- Record of birth (state.)
- Supplemental birth report.
- Birth certificate.
- Birth certificate given to parents.
- Monthly report of births.
- Monthly report of births by wards.
- Municipal weekly morbidity report to U. S. Pub. Health Service.
- Certificate of death (city).
- Certificate of death (state).
- Certificate of death given to any one who wishes.
- Monthly report of deaths.
- Monthly report of deaths by wards.
- Monthly report of burials.

Two or three additions might be made to the above list, as for instance, a letter to physician reporting death from unreported reportable disease asking why disease was not reported:

- Application for transcript of record.
- Certificates of search of records of births and deaths.
- Monthly report of deaths by causes and wards.

Use of Instructive Leaflets.

The instructive cards and leaflets used by the St. Paul Bureau of Health are—Rules Governing the Control of Communicable Diseases (for physicians); Directions for Vaccination and After Care; Anti-spit-

ting Ordinance; Milk and Cream Ordinance; and a poster to educate the public as to the dangers of flies.

Other leaflets in use in some of the cities under comparison which might well be added to St. Paul's list are :—

Regulations for barbers and barber shops.
Ordinance for licensing, regulating and inspecting hotels.
Extract from laws on bakeries.
Ordinance regulating butchers and butcher shops.
Ordinance regulating sanitary conditions of stores selling food stuffs.
Rules for care of milk in the home.
Rules governing the handling and bottling and sale of pasteurized milk.
Instructions to dealer in milk.
Regulations for cemetery keepers and undertakers.
Leaflets on all contagious diseases—for public, not physicians.

The general conclusions which must be drawn from all the foregoing comparisons of record blanks in use in St. Paul and those in other cities are :—

1. That the machinery for record keeping in the Health Bureau of this City is on the whole incomplete and poorly coordinated.

2. That blanks for recording some of the data are entirely lacking, which lack not only makes it impossible to ascertain the grade of work done along these lines and the results accomplished, but also leaves it a matter of uncertainty whether or not any such work is actually being done.

3. That the lack of some record blanks and the incompleteness and poor coordination of the others detracts from clearness and accuracy of analyses of conditions found and of the tracing of results of the policy followed.

New blanks should be prepared and put in use which will make the system more nearly complete, and such blanks with those now in use should be so coordinated that a clear-cut cross section of work done may at all times be available, and that the detailed steps of the policy followed may be so evident as to facilitate further progress.

Food and Meat Inspection

FOOD INSPECTION

The city food inspection is in the hands of one inspector who inspects and scores for sanitation all food handling establishments except those dealing in meat or dairy products. He has under his care about 70 bakery shops, 35 candy factories, 35 commission houses, 60 peddler wagons, 7 ice cream factories, 6 pop factories, and grocery and confectionery stores so numerous that he cannot properly look after them all or even keep account of their number. Without a doubt he should have an assistant, but so far the need has not been filled. He also aims to be present at fruit auctions on railroad cars to see that rules of sanitation are complied with. The results of the scoring are not published in any way except as the list of places scored in the annual report. The records of

scoring were not in shape for tabulation later than 1917, and those procured in that year were for the months of September, October, and November only. The places then investigated were classified in two groups, bakeries and like places, and candy factories and like places. A tabulation of these records has been made as follows:

| Score | Bakeries, etc. Sept., Oct. 1917 | Candy Factories, etc. Oct. and Nov. 1917 |
|-------------------|---------------------------------|---|
| 50-60 | 2 | |
| 60-70 | 14 | 4 |
| 70-80 | 36 | 13 |
| 80-90 | 16 | 3 |
| 90 and over | 4 | 8 |
| Total | 72 | 28 |

This is not a remarkably large number of scores from which to draw conclusions, but what figures there are obviously tend to give a fair average. In the case of the bakery inspection 56 out of a total of 72, or 77.77% are scored 70 points or above, while for candy factories the percentage of those scored at 70 or above is considerably higher, 85.71%, altho due allowance must be made for the fact that less than half as many inspections were made for candy factories as for bakeries.

The only food-handling places licensed are hotels and restaurants, with the exception perhaps of peddlers, but their licenses are granted by the City Clerk, where licensing is more for city revenue than for the protection of the health of the people.

There are not many prosecutions, perhaps six or seven according to the food inspector, during this last year, 1918. Whether this shows merely that the Bureau of Health considers this inspection educational rather than punitive, or whether the small number of prosecutions are due to failure to inspect and prosecute, we are not prepared to say. The inadequacy of the force of inspection would lead to the latter conclusion.

There are no laboratory facilities in the City Health Bureau for analysis of food, consequently the division of food inspection deals only with sanitary conditions, leaving the enforcement of pure food laws to the State and Federal governments. The State has a division of food inspection, which not only inspects for sanitation all food shops and meat markets, but analyzes samples for adulteration. There are 5 inspectors throughout the State, one of whom spends practically all his time in St. Paul. Just how much overlapping of work there is between the State and City food inspectors can be only a matter of conjecture. Since neither side reports a knowledge of the other's findings, there doesn't seem to be a considerable amount of co-operation between the two; but of course, it must be remembered that there are quite different schemes of work involved in each case, for while the city bends its energies toward producing a high standard of sanitation, that is a secondary aim in the State work, its primary concern being the keeping of food stuffs chemically up to the standard required by State law.

The amount of Federal food inspection accomplished in St. Paul is part of the work done in the entire district which consists of Minnesota, North and South Dakota, Wisconsin and the northwest part of Michigan. For this territory there are at present two inspectors, altho their work by no means comprises the total amount, since, owing to the efficient co-operation of the State Department of Food Inspection, many cases for investigation come up to the Federal Bureau indirectly. Altho most attention is paid to violations of pure food laws, yet wherever Federal investigation finds insanitary conditions the matter is at once reported to the proper authorities in the City or State Health Departments. The Federal Bureau for Food and Drug Inspection considers the conditions in St. Paul reasonably good; exact figures for prosecutions are not available but the Federal Food Inspector states that during the last year there have been very few cases against St. Paul manufacturers,—altho in this respect one must bear in mind that St. Paul is not predominantly a food manufacturing city.

MEAT INSPECTION

Inspection of meat in St. Paul is separate from that of other food. There are three inspectors with definite assignments as follows:—One takes the east half of the city, one the west half, and the third inspects commission and slaughter houses, and has charge of following up complaints, endorsing licenses and making any investigations asked for. A considerable amount of meat comes under the interstate shipment law, and therefore, is Federally inspected at the South St. Paul yards. Including pork, about 99% of which is destined for interstate commerce and consequently under Federal inspection, of all the meat consumed in St. Paul about 75% is Federally inspected. Of beef alone the figure is lower, only about 66% of which is inspected by the United States Government. It is not compulsory for the City to inspect the remainder of meat not Federally inspected, but practically this is done. Also the inspector who has charge of slaughter houses endeavors to be present at the time of slaughter in order to hold both ante and post mortem examinations. The only meat handling places that are licensed are the retail establishments. Prosecutions are few, 4 or 5 per year, for, as in the case of other inspection work, the aim is educational rather than punitive, and prosecutions are made only when the case is one of wilful misdemeanor. In condemning meat no cards are used to show that the meat is condemned or held for inspection, except in the case of meat bought by contract, when a certificate of condemnation is given if the receiver asks for it, to show that the meat was unfit for consumption so that he may not be the loser by the transaction.

A list of the places scored by the Meat Inspector is given in the annual report, but no tabulation is made to show the conditions found by

the scoring. Accordingly the scores made from January to October, 1918, have been tabulated as follows:

| Score | June | July | Aug. | Sept. | Oct. | Total |
|----------------|------|------|------|-------|------|-------|
| Under 50 | 1 | | | | | 1 |
| 50-60 | 2 | | | | | 2 |
| 60-70 | 4 | | | | 1 | 5 |
| 70-80 | 11 | 2 | 1 | 4 | 47 | 65 |
| 80-90 | 39 | | 1 | | 31 | 71 |
| Over 90 | 24 | | | | 3 | 27 |
| Total | 81 | 2 | 2 | 4 | 82 | 171 |

It will be noticed that there are no scores given for months earlier than June, and that in July and August, the two months out of all the year in which food-handling places need attention because of temperature conditions, only 4 scores were made. Barring these criticisms, however, the results of the scoring are remarkably good. The City is to be congratulated, and the Health Bureau particularly, on the standard of sanitary excellence which must prevail in its meat handling stores when 95.32% of those scored show a score of 70 or over, and more than half or 57.31% achieve 80 points or over.

As has been stated the State Food Inspector working in St. Paul inspects meat also, but he inspects for adulteration only and not disease. The State Live Stock Sanitary Board looks after all infectious and contagious diseases among animals throughout the State besides doing a certain amount of tuberculosis testing.

One marked defect in St. Paul's food and meat inspection is the lack of any law requiring the medical examination of food handlers. It is needless to dwell upon the folly of requiring high standards of cleanliness in surroundings alone, when the person handling the food or meat may be shedding all sorts of malignant germs over the city's food and meat supply. A State law would be an excellent way of bettering the situation inasmuch as its results would be more far reaching, but a city ordinance would be a step in the right direction as far as St. Paul is concerned.

The Milk Supply and Dairy Inspection

The City milk supply comes from about 1000 herds, including that from the "shippers," i. e., producers living so far outside the city that they have to ship their milk by train. No milk, however, is shipped from any point farther away than Northfield, Minnesota, (a distance of about fifty miles), and most of the milk shipped from a distance comes from places within a radius of ten miles. The total amount of milk sold in the city is about 28,000 gallons daily, of which 16,000 or 57.1% is pasteurized, and 12,000 or 42.9% is sold raw. Of the pasteurized milk 7,000 gallons come into the city by wagons and 9,000 by train. There are six pasteurizing plants, and they are all of high grade, doing the

work by the holding system (heated to 140° to 145°, for thirty minutes) and having their equipment in good sanitary condition. All pasteurization is done in bulk, however, and none in the bottle. A part of the raw milk sold is certified, but it is a very small part, the exact amount of which it is impossible to ascertain from the dairy inspection records. There are only two dairies offering certified milk, and they do it on a small scale, more for the accommodation of their customers than for profit. One of the dairies produces about 150 to 200 gallons daily, and the other one less, but since they cater to both St. Paul and Minneapolis, it is not possible to tell just how much of the whole goes to St. Paul.

It was stated by the Milk Inspector that none of the raw milk sold is sold in loose sales, that is in bulk, not bottled. This is, of course, a great advantage and is one factor for keeping a high standard in the quality of milk. Other factors conducive to a characteristically good milk supply are those previously noted,—the high percentage of pasteurized milk, the comparatively short distances from which milk is brought to the consumer, and the large proportion of time in the year in which the prevailingly cool temperature is favorable for keeping milk in good condition. In view of these considerations, St. Paul's milk supply should be quite uniformly good. There are no tabulations kept of the results of dairy scoring and the bacteriological examinations but for the purpose of this survey we have tabulated the records from January to October 1918 for these data, with the following results. There are a total of 1,042 producers under inspection, 311 inside the city and 731 outside. The scoring during this time has been negligible, five scores made in January for herds containing a total of 124 cattle and one score in May for one herd of 20 cattle. The results of these few scores are with one exception fairly good: 77, 26, 72, 73, 65, and 77,—but one would hardly consider them either good enough or numerous enough to justify absolute cessation of scoring as a consequence.

No bacterial counts were recorded until April, and the bulk of those recorded after that time were taken in August and September. It is very evidently a good policy to make the majority of counts in the summer months, but it would seem that July at least, and preferably June also, should be included in the list of summer months. The results of what examinations were made are as follows:—

| Number of bacteria per cc. | | | |
|----------------------------|-----------------------|-------------------------|-------------------|
| Under 100,000 | 100,000 to 500,000 | 500,000 to 1,000,000 | Over 1,000,000 |
| 35 | 23 | 11 | 2 |

The existing City ordinance fixes 500,000 as the highest number of bacteria per cc. allowed in milk to be sold as pure. Undoubtedly this is too lenient a standard and it is to be hoped that, as the Dairy Inspector states, there will soon be a new ordinance with a more satisfactory standard. Interpreting the facts in the light of the present standard,

however, it is not especially gratifying to find that nearly 20%, 18.31% to be exact, of the samples examined gave higher bacterial counts than 500,000, and are therefore impure milk according to the City ordinance. The situation is much worse if we take a more generally recognized standard of purity for, to quote from the New Haven Health Survey "One hundred thousand bacteria per c. c. is the maximum number of bacteria permitted, according to generally accepted standards, in milk to be drunk raw, while 1,000,000 is the maximum number generally allowed for milk to be used for cooking."* According to such a standard a good half, or 50.70% of the milk examined in the above table is unfit for raw food. Since St. Paul has no classification of milk to be sold for raw food and that for cooking purposes, it is reasonable to suppose that a part at least, of the 50.70% unfit for raw consumption was used in just that way. Of course, a total of approximately 70 bacterial examinations is not a very large number from which to judge the quality of a city's milk supply, also altho the samples tabulated represent all the sources of supply examined, some had more than one sample taken in the given time, in which case only the last sample was tabulated. If bacteriological examinations caused improvement in those cases, it is fortunate for the character of the milk supply that we have tabulated the final samples; also it would seem advisable to have one sample at least from each source of supply to know whether improvement is or is not necessary.

Tuberculin testing is done by the Live Stock Inspector, a veterinarian whose title is misleading since his work is mainly in the field of tuberculin testing, with some examinations for rabies, and his records of cattle tested are on the Dairy Inspection cards. From January to October, 1918, there were 2,816 cattle tested, of which 51 responded to the test and were condemned, altho only 28 of those 51 were killed. The percentage of reactions is uncommonly low, about 4%, and it may be possible as Dr. Young states** that fraudulent means have been used to defeat the purpose of the test.

The State has a Dairy Inspection Division which has 3 inspectors, one of whom spends most of his time in St. Paul. He takes from delivery men daily samples of milk which are analyzed with a special view to upholding the State standard of butter fat content. Also he inspects dairy barns outside of city limits, and scores them approximately once a year. Here, as in the Food and Meat Inspection there seems to be very little co-operation between the State and City inspections and there is a chance at least for duplication, although on the side of the scoring it has been seen that the City's scores are not so numerous but that there is a chance for considerable State work also.

*Health Survey of New Haven, p. 62.

**Public Health Reports: Jan. 12, 19, 1917. Public Health Administration in St. Paul, Minn., by G. B. Young, Surgeon U. S. Public Health Service, p. 103.

Sanitary Inspection of Hotels and Restaurants

Technically speaking, the sanitary inspection of hotels and restaurants is done under the Division of Sanitary Police, altho practically the Hotel Inspector works separately and in a more or less independent capacity. He works alone, though without a doubt he should have an assistant, or if that is not possible, he should at least be relieved of what office work he is now called upon to do which lies outside his own special field. The present Hotel Inspector has been in the office of the Health Bureau for four years, a long enough time to enable him to become fairly familiar with the workings of other divisions than his own,—with the result that he is frequently pressed into service in work entirely outside his own field, such as the recording of vital statistics, and however clever a Jack-at-all-trades he may be, the effect of such procedure on the work of hotel and restaurant inspection can not fail to be bad.

The work of hotel and restaurant inspection is of a double nature, for since licenses are granted for a year and therefore are expiring at all times, initial inspection for granting licenses must go on all the time, and after the license is granted the place must be inspected and scored from time to time to insure the standard to be maintained. Because of his office work and the continuous inspection for license granting, the Hotel Inspector states that he is not able to do very much work in scoring. When he does do anything in this line he uses a score card of his own devising which evidently answers the purpose under the existing conditions. If the Inspector had help or in some way was given more time to do the work of scoring, separate score cards for hotels and restaurants should be used, and these cards the Inspector in the light of his previous experience could undoubtedly formulate.

The Hotel Inspector was unable to state just how many hotels and restaurants are under his care at the present time, and because of pending changes in the system he preferred not to have us study the files for that information or for tabulations of the scoring and its results. However, he said that in other years he had about 600 hotels, restaurants, etc., under his inspection, but that the number was considerably smaller than that at the present time. The falling off is, of course, due to war conditions, which also are a factor to be considered in attempting to enforce the highest standards of hotel inspection, for according to the Hotel Inspector, so many hotel and restaurant keepers are on the verge of having to close up shop that a few legal requirements more or less do not make much impression on them. His policy is one of education before the granting of a license rather than prosecution afterwards, and fortunately the routine involved in the filing and granting of an application for a hotel or restaurant license is conducive to the success of this policy. Before a formal application can be filed the premises must be inspected by the Health, Police and Fire Departments, at which time

it is a very simple matter, if the findings are not satisfactory, to frankly tell the person wishing to apply, in what respects he falls short and so help him to raise his place to the proper standard without going through the red tape of rejecting his formal application or having to revoke his license later. Licenses are granted, when approved by the Council after satisfactory inspection by the Health, Police and Fire Departments, by the License Inspector, and he is the official to whom all violations of the law, i. e., instances of hotels, restaurants and all other like places operating without being licensed, are reported. However, the Health Bureau can revoke any hotel or restaurant license upon the grounds of unsatisfactory health conditions, as can the Police and Fire departments for reasons of immorality or fire risk. But as has just been explained, on the side of the Health Bureau at least, the policy is rather to educate before granting a license so that revocation will not be necessary.

The State maintains a Department of Hotel Inspection through which it accomplishes some work in St. Paul. However, here as in the other divisions of inspection—Meat, Food and Dairy—there is a regrettable lack of co-operation, altho the blame can not be laid on the inspectors in any case, since there is the handicap of lack of assistance in both City and State work due to inadequate appropriation of funds. The State Inspector and his deputy have 5,000 hotels to inspect throughout the State. In consideration of the amount of time necessary for traveling and the inadequacy of funds for traveling expenses, (\$900, the sum remaining out of the appropriation of \$6,000.00 after salaries of Inspector, Deputy, and stenographer, and postage and stationery expenditures have been deducted, must pay all other expenses, including those for traveling) it is not surprising that, as the Inspector states, only about a third of the hotels in the State are inspected yearly. Even this amount of inspection is done partly by the 125 inspectors from Oil, and Dairy and Food Inspection Departments, who turn over appropriate findings from their own inspections to the Hotel Inspection Division whenever possible. It is impossible to tell how many inspectors are at work in St. Paul, or how many inspections are made by them in this City. One of the aims that the State Inspector's office is working for is the elimination of the cheap lodging house, altho it realizes that something better must be provided to take the place of the cheap lodging house before it can be abolished. The office of the State Hotel Inspector is also interested in the development of hotels on the cubicle plan. There is one such in St. Paul, on Third and Robert Streets, which seems to be meeting with success not only from the sanitary point of view, but from the financial as well.

Both the City and State Hotel Inspectors are anticipating changes in their departments at an early date, and it is to be hoped that their anticipations will be realized in the best sense, that larger appropriations

will be granted, which will allow more assistance and more time for co-operation with each other, thus bringing about a high standard of efficiency all around.

The Control of Communicable Diseases

As was stated earlier in this chapter the control of communicable diseases is directly under the supervision of the Deputy Health Officer. Until quite recently, the year 1914, the work for the control of tuberculosis was done by an organization entirely apart from the City Bureau, the St. Paul Anti-Tuberculosis Committee. In fact, at the present time, altho the Tuberculosis Division of the Bureau of Health is legally under the jurisdiction of the City Health Bureau and responsible to it, yet the office for the tuberculosis work is situated in another building some distance from the one in which the Health Bureau is located, the Tuberculosis Dispensary is with neither the Health Bureau office nor with the rooms of the Tuberculosis Division, and furthermore the whole routine work of the Tuberculosis Division tends to form a somewhat separate system—naturally enough, when one considers its growth apart from the City Health Bureau prior to its being taken over by the latter.

In view of this somewhat unique relationship of the control of tuberculosis to the rest of the communicable disease work, we shall treat it apart and give it fuller discussion later, with this preliminary explanation as a basis.

MEDICAL INSPECTORS AND SANITARY INSPECTORS

The routine work for the other communicable diseases is performed by Medical Inspectors and Sanitary Inspectors. The Medical Inspectors are four in number, but they are paid for part time only, and their duties are mainly to inspect suspicious cases reported to the Bureau of Health. If such cases turn out to be cases of real contagion they are referred by the Medical Inspectors to the Sanitary Inspectors who take charge of all consequent quarantine routine. The Sanitary Inspectors are 12 in number, each of whom has charge of one ward, abating nuisances in it and looking after quarantine. There is a book for the work of each ward and in these are entered all sanitary complaints, most of which are made over the telephone, and all requests for the taking of cultures and release of quarantine. Each Sanitary Inspector consults his book twice a day, noting after the various cases the progress of his work on them. He also makes out daily reports from which is compiled the annual report. Disinfection is in the hands of the Sanitary Inspectors, altho the Health Bureau is to be congratulated on its policy of getting away from the practice of disinfection as rapidly as possible since it recognizes that the danger of contagion is not so much in the surroundings of the dis-

ease as in personal contact, and is therefore paying more attention to the isolation of patients and carriers.

HOSPITALIZATION

All contagious diseases with the exception of small-pox and tuberculosis are cared for in the contagious disease wing of the City and County Hospital. The City and County Hospital holds a somewhat anomalous position in the health organization of the City, inasmuch as the City's part of its support is in the hands of the City and County Board of Control and not the Health Bureau, altho the latter sends its hospitalized cases of contagious diseases there and has some general control in that line such as the ability to investigate if things seem not to be running smoothly. General facts concerning the City Hospital may be found in the discussion of all the hospitals in the city. It will suffice here in relation to the work of the Health Bureau in communicable disease control to mention that all cases of contagious diseases when hospitalized are sent to the contagious disease wing of the City Hospital, with the exception of tuberculosis, which may also be treated at the City Hospital, but in a different section, the Tuberculosis Pavilion, and small-pox for which there is a special isolation hospital known as the Dale Street Infirmary. As in the case of the City and County Hospital, the County bears part of the expense of the Dale Street Infirmary, altho in this case the City's share is charged to the Bureau of Health, *the peculiarity of the arrangement being that while the Bureau of Health bears the expense it has no control over the medical attendance which is performed by the City and County Physician who is responsible only to the Board of Control.* There is a Superintendent in charge of the Infirmary, and his wife, altho not a registered nurse, acts as nurse to the female patients besides being housekeeper and cook. There is also an assistant whose official title is that of Male Nurse, altho actually his duties are those of a laborer and handy man, while the nursing of the men patients is performed by the Superintendent. In 1916 the number cared for in the Dale Street Infirmary was 96. Hospitalization for small-pox is not compulsory in St. Paul, and for that same year there were 33 cases cared for in isolation at home. There were no deaths in either case.

THE LABORATORY OF THE HEALTH BUREAU

Bacteriological work for the control of communicable diseases is done in the Bacteriological Laboratory controlled by the Health Bureau. The laboratory force, as was stated in the chapter on The Organization of the Health Bureau, consists of the bacteriologist, laboratory assistant, and laboratory helper. A record of the examinations made is compiled every month and published in the monthly bulletin, while all the monthly records are consolidated into the tabulation of all bacteriological

examinations in the year which appears in the annual report. The following Table shows the amount of work done in the bacteriological laboratory for the period from 1910-1917:*

| Date | Total | Diph: | Tuberculosis | | Wass. Blood | | Babies | | Misc. | Milk | Water | Swim'g Pool |
|----------|--------|--------|--------------|-------|-------------|------|--------|------|---------|------|-------|----------------|
| | | | POS. | NEG. | POS. | NEG. | POS. | NEG. | | | | |
| 1910.... | 15,358 | 12,063 | 342 | 1,011 | 353 | 663 | 11 | 10 | 799 | 58 | 48 | |
| 1911.... | 11,685 | 8,452 | 364 | 1,036 | 123 | 403 | 34 | 42 | 752 | 119 | 360 | |
| 1912.... | 8,427 | 4,875 | 356 | 1,164 | 126 | 461 | 43 | 35 | 597 | 649 | 121 | |
| 1913.... | 11,131 | 8,297 | 336 | 1,031 | 151 | 510 | 23 | 33 | 193 | 492 | 65 | |
| 1914.... | 19,541 | 15,939 | 389 | 1,518 | 131 | 553 | 1 | 9 | 689 | 643 | 269 | |
| 1915.... | 17,891 | 14,431 | 336 | 1,501 | 132 | 501 | 6 | 13 | 767 | 47 | 157 | |
| 1916.... | 17,065 | 12,905 | 310 | 1,327 | 39 | 407 | 46 | 44 | 1,282 | 410 | 154 | 141 |
| 1917.... | 23,301 | 18,904 | 288 | 1,306 | 26 | 363 | 36 | 35 | (1,565) | 642 | 136 | |

Before leaving the general subject of communicable disease control something should be said regarding measures of control available for epidemics. At the time of writing this report an epidemic of Spanish Influenza is sweeping the whole country, and altho up to the present time St. Paul has not suffered to the extent of some other cities, the comparative lightness of the epidemic here has been due to good fortune rather than to pre-eminently wise measures of control. Indeed, instead of such a comforting situation as that, there are certain glaring deficiencies which need only a greater amount of devastation from this or any other epidemic to be generally acknowledged as criminal.

In the first place, as has already been mentioned earlier in this chapter, the only hospital over which the City has control, the City and County Hospital, not only is entirely outside the jurisdiction of the Health Bureau but is in the hands of the Board of Control, a body whose responsibility is divided between the City and County. At the present time the City and County Hospital is filled to capacity, and the Health Bureau upon which the responsibility for curbing the epidemic rests, is powerless to provide further hospitalization with the present facilities at its disposal. The obvious compensation for lack of hospital care is isolation and adequate nursing in the home. Without doubt the necessary isolation is often impossible, especially in congested areas where there are large families with two or three persons to the room. What can be done in regard to enforcing those parts of the recent housing legislation concerned with the restriction of congestion can at least be done by the Health Bureau, altho adequate enforcement will be valueless as far as the epidemic is concerned without proper provisions for the immediate amelioration of conditions of congestion.

In regard to adequate nursing facilities the City is impotent. With the present shortage of nurses it is impossible for the Health Bureau to requisition a temporary nursing force to meet emergency conditions, and it has no public health nurses of its own, barring the tuberculosis nurses

*The totals in the Table for the years 1910, 1913, and 1916 do not tally with those in the annual health reports for the same years, since it was found that the latter were not a correct addition of the specified examinations. The rest of the figures are exact copies from the annual reports.

who have a very large field to cover in their own work and are not supposed to work in any other line. Even if plenty of private nurses were available for emergency work the Health Bureau would be unable to use them or other medical services on a large scale without special appropriation for the purpose, while without a permanent staff of general public health nurses in its own department it could not even perform that limited service in the beginning of an epidemic which might so have checked its growth that further appropriation and extraordinary measures would be unnecessary.

As is shown in the chapter on health work in the public schools, the question of school sanitary control of contagious diseases rests not with the Bureau of Health but with the Division of Hygiene, Department of Education. Only in the case of gross neglect on the part of the latter can the Health Bureau step in and take more than an advisory control. Whatever may be said for this division of health work in normal times, during the exigencies of such a country-wide epidemic as this scourge of Spanish Influenza, it seems unquestionably a regrettable point of weakness to allow any but the strongest kind of centralized control in public health work.

The Control of Tuberculosis

Explanation of the unique position which the Tuberculosis Division of the Bureau of Health holds in respect to the rest of the Bureau of Health has already been made in the discussion of the control of communicable diseases in general. The working force of the Division consists ordinarily of a Head Nurse and six Visiting Nurses, one Sanitary Inspector, one part-time Medical Inspector, and a clerk and typist.

The Head Nurse does not have a district but has her time fully taken up with dispensary work, office administration, and consultation with the head of the Communicable Disease Division. The six Visiting Nurses are each assigned to a district, and they not only visit to acquire data, give instructions and follow up suspects, but also do beside nursing and dress surgical cases, with no restrictions on the admission of beneficiaries to their services, giving in all cases advice and arranging for examination at least. The nurses are not uniformed and have no official badge, and no other title than that of Visiting Nurse—a condition which was criticized by Dr. Young in his survey report, but in spite of his recommendation that they be called "Field Nurses Bureau of Health" and wear the City uniform* no changes along this line have occurred.

In the year 1917 the total number of calls made by the nurses was 15,700 and the number of patients they succeeded in having admitted to sanatoria or other institutions was 322.

The Sanitary and part-time Medical Inspectors form one of the more obvious links with the Bureau of Health, since they are primarily offi-

*Public Health Reports, Jan. 12, 1917. Dr. G. B. Young. p. 133

cials of the City department in general and are given their assignments in the specific field of tuberculosis control. The Sanitary inspector's work is of a follow up nature, inasmuch as he sees to it that the orders made by the nurses are carried out in respect to renovating rooms after having been occupied by tuberculosis patients and to burning all non-boilable things used by and around patients. In the year 1917, 360 such renovations and disinfections were accomplished. The part-time Medical Inspector works at the dispensary on clinical duties alone. He holds two morning clinics a week for children from 9 o'clock on as long as there are patients, and a daily clinic from 12:30 on for adults. As has been stated, the Head Nurse spends a large part of her time with the clinical work and the other nurses take turns in helping at the dispensary also. As in the case of the home nursing, there are no limitations in admitting patients. All who come are given at least an initial examination.

The report for the dispensary work for the year 1917 is as follows:

| | |
|------------------------------------|-------|
| Total Attendance | 2,517 |
| New examinations | 632 |
| Revisits | 1,885 |
| Positive cases | 181 |
| Observation and negative | 451 |
| POSITIVE CASES | |
| Hospital or sanatorium cases | 127 |
| Died | 14 |

Tuberculosis is a reportable disease in the State of Minnesota. As is the case in most communities, however, the law is not perfectly carried out. In 1917, according to the figures in the annual report for that year a third of the total 339 fatal cases of tuberculosis were first reported by the death certificate. However, out of the 113 cases must be deducted the 30 caused by meningeal and the 13 by miliary tuberculosis, making a total of 43 cases where since the disease develops as a sure form of tuberculosis only in the final stage, a lack of reporting other than by death certificate may be excused. The other 70 cases were chiefly pulmonary and it seems strange indeed that they were not seen and diagnosed before death. Besides these 70 cases or 20.6% of the total number of deaths from tuberculosis unreported except by death certificate, there were 107 cases duly reported but reported in less than six months previous to death and were therefore dying cases at the time of reporting. Since one of the essentials in tuberculosis treatment is to reach the patient in the earliest stages possible, this belated reporting may fulfil the letter of the law but not the spirit, and likewise does it fall short in the matter of protection to others since such neglect is capable of almost incalculable harm in widening the chance for infection.

The above quoted figures on the efficacy of the reporting system speak for themselves. When over 60% of the total number of deaths in a year are either reported only by the death certificate or reported previously, but so very nearly at the time of death that the cases are virtually dying ones at the time of registration, it is evident that in the matter of satis-

factory tuberculosis reporting St. Paul has still some improvements to make.

That the Tuberculosis Division is realizing the need of more co-operation from the physician is apparent from the fact that in the year 1917 there was started the practice of sending Quarterly Letters to physicians who had reported cases for registrations only. On account of depletion of the working force the practice has had to be discontinued for the present. Information concerning the results obtained from such letters during the year 1917 is contained in the following quotation from the report of the Tuberculosis Division in the Annual Report of the Bureau of Health for that year;—

“Following the procedure in other cities, Quarterly Letters were sent to physicians who had reported cases for registration only. They were asked the following questions: Is the patient reported by you on a given date still under your care? What precautions, if any, are taken to isolate the patient? What is the patient's present address? One hundred and seventeen letters were sent concerning 301 cases. One hundred and twenty-eight were reported as still under the examining physician's care, 16 had died out of town. In 103 cases physicians reported precautions were taken. In 68 cases the doctors did not know the patient's address. In 104 cases the doctors had no knowledge of the patients and 47 were reported as having left town. This report is interesting as showing that in 50% of these cases the doctors did not remain in touch with them. As they were not visited by the field nurses, they may not have been supervised at all. They may have moved and infected many others. Their own families may have been the victims of their carelessness. They may have lost all chance of recovery through their mode of life. It seems to me this is an excellent argument for allowing the field nurses' cooperation.”

It is unnecessary to further comment upon the facts revealed by the above quotation. It is to be hoped, however, that the practice of Quarterly Letters will be continued and that it will be used not only for investigation but for producing increasingly improved conditions.

The Tuberculosis Division of the Bureau of Health maintains no sanatorium or other hospital facilities of its own. What institutional care is available for persons afflicted with tuberculosis is either under private control, or where public, is out of the specific jurisdiction of the Bureau of Health. The City and County Hospital has a separate wing, the Tuberculosis Pavilion, for tuberculosis patients. All other hospitals in the city, with the exception of one small one, the Midway General, exclude tuberculosis cases. A City and County Sanatorium is maintained at Bass Lake several miles outside the city limits, and the Children's Preventorium maintained wholly by private subscription, is situated on land adjacent to the Sanatorium. The City and County Sanatorium formerly admitted both men and women, but the present regulations provide for men only and the number for whose care there are adequate

facilities is twenty-four. A summary of the work accomplished by the City and County Sanatorium for the year 1917 is as follows:*

| | |
|---|-------|
| Number admitted since January 1, 1917 | 40 |
| Number patients remaining in Sanatorium Jan. 1, 1917..... | 18 |
| Total number of patients under treatment since Jan. 1, 1917..... | 58 |
| Number patients discharged since January 1, 1917..... | 36 |
| Number of deaths since January 1, 1917..... | 0 |
| Number of patients remaining under treatment December 31, 1917..... | 22 |
| Total | 58 |
| Discharged, "Improved" | 25 |
| Discharged, "Unimproved" | 11 |
| Died | 0 |
| Remaining under treatment December 31, 1917 | 22 |
| Total | 58 |
| Largest number of patients under treatment at any one time..... | 23 |
| Smallest number of patients under treatment at any one time..... | 17 |
| Daily average number of patients | 20 |
| Daily average number of patients and employees | 26 |
| Average number of days' stay of patients | 128 |
| Total number of day's treatment given in Sanatorium since January 1, 1917.. | 7,427 |

The Children's Preventorium can accommodate 45 children, and in view of the size of its waiting list an enlargement of the capacity of this institution is greatly needed. Further discussion of the work of the Preventorium will be given later on in this report together with the other charitably run agencies devoted to health work. Besides the City and County Sanatorium there is a State Sanatorium in Cass County near Walker, Minnesota, to which St. Paul is entitled to send a certain number of patients, since the Sanatorium is open not only to those counties having no sanatoria of their own, but also to those whose sanatorium accommodations are insufficient to meet local needs. There is no allotment to the counties, since the Sanatorium has always had enough room to take all the patients sent. At the present time, Ramsey County has 58 patients there, which number is probably not the maximum allowed.

Only incipient cases are admitted to the State Sanatorium, however, so that the advanced cases have no choice but the City and County Sanatorium or the City and County Pavilion. This presents an additional reason for the prompt reporting of cases by attending physicians, since delay in reporting lessens the patients' chances for admission to the State Sanatorium.

The only requirement for admission to any of these institutions is the residence of the patient in the city or county from which he is sent. The cost of treatment may or may not be paid by the patient, depending entirely upon his financial circumstances. Sanatoria capacity in and about St. Paul appears to be adequate for the city's needs. In case of a temporary shortage patients may receive treatment in any of the other county sanatoria at \$10 a week, provided that none of that county's own residents are kept on the waiting list for that reason. Some of the sana-

*Taken from the 1917 Report of the Board of Control of St. Paul and Ramsey County, Minnesota.

toria in other counties* are more attractively equipped than those on which St. Paul depends and it would seem that the latter might well follow their example and make the conditions as attractive as possible. At present the City and County Sanatorium and the City and County Pavilion are not popular, and altho the latter cannot get rid of its objectionable hospital environment, (objectionable because of the predisposition of the patient's mind against a hospital which is considered a place to die in) yet at least a certain attractiveness in the daily routine and in the assignments of work might be introduced in both these institutions.

Some anti-tuberculosis work, one fresh air class for 25 pupils, is accomplished in the schools by the Division of Hygiene in the Department of Education, which should be mentioned here, but will be more fully discussed later with the other school health work. Additional anti-tuberculosis work is done in St. Paul by two other agencies,—the Minnesota Public Health Association, and the State Board of Health. The Minnesota Public Health Association, altho spending a large proportion of its effort and money in the prevention and cure of tuberculosis, works also along the lines of more general public health. As a private agency it will receive more detailed discussion further on in this report, but here in connection with the City administration's control of the tuberculosis situation, it may be said that there seems to be considerable lack of co-operation between the Minnesota Public Health Association and the Tuberculosis Division of the Bureau of Health. To be sure, the former's work, in St. Paul at least, tends more to the educational side. Also where the Minnesota Public Health Association encounters cases in need of service in St. Paul it turns them over to the City's Division.

The same criticism holds true for the tuberculosis work of the State Board of Health. With the exception of the work done by the State in the reporting of cases of tuberculosis belonging to the City, but temporarily outside its corporate limits, (this forms a considerable item now because of soldiers belonging to St. Paul but quartered outside) the State's main attempts at co-operation with the City seem to be spasmodic reporting to the Tuberculosis Division of cases already known to it, cases sometimes that have been on its records for a long period of time. One would suppose that if the State recognized the City's Tuberculosis Division as such, it would merely refer their cases of tuberculosis coming to its notice to the Division rather than following up the cases themselves. If the time spent on such details were turned to the formation of a program of large oversight of the City's work and leadership in the latter's constructive policies, tuberculosis work in St. Paul would attain a much higher degree of efficiency.

*A good example of what can be done in the way of making a sanatorium attractive is Nopeming Sanatorium in St. Louis County, Minn. There the patients are not limited in their work to the house drudgery of the care of the institution, for altho they do perform the household duties as in other sanatoria, they also have classes in modeling, basketry, etc., by which they are not only kept happy, but are given a certain amount of vocational training as well.

Infant Welfare Work

The City Health Bureau has no department for the prevention of infant mortality, and the work it does in that line is negligible. Beyond the work of the stenographer in checking up births and deaths of children under two years, and the Table in the annual report showing the deaths of infants under one year arranged according to wards there is no especial work done by the city in the extraordinarily important field of infant mortality prevention. Very fortunately for the babies of St. Paul they are not entirely dependent upon the city for help to good health, since a privately maintained organization, The Baby Welfare Association, fills this need.

A matter that is likely to have a strong bearing on the infant mortality rate of any city is the prevalence of midwifery and the amount of government supervision exercised over this practice. St. Paul seems to have the basis for a goodly problem in this respect. The annual report for 1916 was the first to show any figures concerning midwifery, therefore comparisons are possible for only the two years 1916 and 1917. The following tables show the percentages of births attended by midwives in these two years and their distribution by wards.

The distribution varies largely in the different wards,—from 16, or 4.52% of the total births in the Seventh Ward to 283, or 40.93% in the Eighth, for the year 1916, and from 8, or 2.21% in the Seventh Ward to 256, or 39.09% in the Eighth for the year 1917. The number of births in all the wards attended by midwives is very nearly a quarter of the total births in the city—24.78% for 1916, and 22.37% for 1917. Whether the slight decrease from 1916 to 1917 is due to changing conditions or to normal variability it is impossible to say without statistics for other years for comparisons.

TABLE XXIII

Table Showing the Distribution of Births in St. Paul by Attendant and by Wards for 1916.

| WARDS | PHYSICIAN | | MIDWIFE | | OTHER | | TOTAL | |
|-------------|-----------|-------|-----------|-------|-----------|-----|-----------|--------|
| | No. Cases | % | No. Cases | % | No. Cases | % | No. Cases | % |
| I. | 448 | 69.47 | 196 | 30.38 | 1 | .15 | 645 | 100.00 |
| II. | 391 | 81.77 | 85 | 17.81 | 2 | .42 | 478 | 100.00 |
| III. | 103 | 73.05 | 38 | 26.95 | 0 | .00 | 141 | 100.00 |
| IV. | 106 | 91.37 | 10 | 8.63 | 0 | .00 | 116 | 100.00 |
| V. | 377 | 61.98 | 230 | 37.86 | 1 | .16 | 608 | 100.00 |
| VI. | 417 | 73.33 | 150 | 26.32 | 2 | .35 | 569 | 100.00 |
| VII. | 339 | 95.48 | 16 | 4.52 | 0 | .00 | 355 | 100.00 |
| VIII. | 407 | 58.94 | 283 | 40.93 | 1 | .14 | 691 | 100.00 |
| IX. | 285 | 72.71 | 107 | 27.29 | 0 | .00 | 392 | 100.00 |
| X. | 437 | 92.75 | 33 | 7.04 | 1 | .21 | 471 | 100.00 |
| XI. | 397 | 92.22 | 34 | 7.78 | 0 | .00 | 431 | 100.00 |
| XII. | 233 | 66.18 | 119 | 33.82 | 0 | .00 | 352 | 100.00 |
| Total | 3,940 | 75.06 | 1,301 | 24.78 | 8 | .15 | 5,249 | 100.00 |

TABLE XXIV

Table Showing the Distribution of Births in St. Paul by Attendant and by Wards for 1917.

| WARDS | PHYSICIAN | | MIDWIFE | | OTHER | | TOTAL | |
|------------|-----------|-------|-----------|-------|-----------|-----|-----------|--------|
| | No. Cases | % | No. Cases | % | No. Cases | % | No. Cases | % |
| I. | 424 | 70.90 | 172 | 28.77 | 2 | .33 | 598 | 100.00 |
| II. | 418 | 85.31 | 72 | 14.69 | 0 | 0 | 490 | 100.00 |
| III. | 73 | 71.57 | 29 | 28.43 | 0 | 0 | 102 | 100.00 |
| IV. | 79 | 90.81 | 8 | 9.19 | 0 | 0 | 87 | 100.00 |
| V. | 406 | 66.02 | 208 | 33.82 | 1 | .16 | 615 | 100.00 |
| VI. | 399 | 76.00 | 123 | 23.43 | 3 | .57 | 525 | 100.00 |
| VII. | 355 | 97.79 | 8 | 2.21 | 0 | 0 | 363 | 100.00 |
| VIII. | 398 | 60.76 | 256 | 39.09 | 1 | .15 | 655 | 100.00 |
| IX. | 309 | 74.28 | 106 | 25.48 | 1 | .24 | 416 | 100.00 |
| X. | 462 | 93.52 | 31 | 6.28 | 1 | .20 | 494 | 100.00 |
| XI. | 410 | 92.76 | 32 | 7.24 | 0 | 0 | 442 | 100.00 |
| XII. | 253 | 70.28 | 106 | 29.44 | 1 | .28 | 360 | 100.00 |
| Total | 3,986 | 77.44 | 1,151 | 22.37 | 10 | .19 | 5,147 | 100.00 |

There are no records of the midwives in the City Bureau of Health, which lack makes it impossible to state even approximately the number practicing in the city. The above figures, however, show that the number is not negligible since nearly one-fourth of the births reported for 1916 and 1917 were attended by midwives.

Supervision of midwives is entirely in the hands of the State, the City having no record of examination or registrations. The State requires either a certificate from a recognized school of midwifery, or, if that is lacking, an examination by the board of examiners. Upon compliance with the requirements of qualification licenses for one year only are granted upon the payment of a fee of one dollar.

The Recording of Vital Statistics

The Bureau of Health maintains a statistician for the collection and recording of vital statistics. His duties are to copy records of births and deaths and to issue copies of the same, and also to issue burial permits. The statistician is not specially trained for his position, which seems unfortunate indeed, inasmuch as such work is supposed generally to require considerable technical knowledge and since the presence of errors, especially in the mortality returns, even if few in number, markedly detracts from their value. The same lack of special training is found in the case of the stenographer who checks up deaths from hospitals and births and deaths of children under two years, and prepares the death certificates for sending to the State Board of Health, which last duty especially requires a technically trained person if freedom from error is to be the standard sought. The original certificates are sent to the State, copies being made and kept in the City Bureau's office. They pass technical inspection at the hands of the Deputy Health Officer, and judging from the omissions and incomplete information in the required social data, he very evidently confines his labors to inspection of

purely medical data. At the same time that the copies are made the records of deaths are also transferred to cards and filed alphabetically, or ostensibly so, as a matter of fact, since the file may be used by any one with no one person directly in charge, it seems to be in chronic state of disorder, and is therefore as much a source of irritation as of use, to an outsider at least; perhaps the members of the office force have become accustomed enough to it to be indifferent. Such lack of system very obviously detracts from the efficiency of statistical work and should not be allowed to continue. Furthermore, it would greatly facilitate the use of the data acquired in the division of vital statistics to typewrite the copies of the certificates, and to use adding machines or other mechanical means for computing the results of the returns. At present the copying is done by hand and no mechanical aids are used in the arithmetical work. The birth certificates are also copied, the originals sent to the State and the copies bound as in the case of the death certificates. But unfortunately no card index is kept of the births, and it is therefore a very laborious proceeding to find the record of any particular birth, since unless the data is accurately known, hundreds or even thousands, of the forms may have to be gone through.

The data on the death certificates is used for checking in all communicable diseases, and as a basis for epidemiological investigations, especially in typhoid fever. There are weekly tabulations made according to wards which are not published, the published report being the monthly bulletin containing tables and classifications of deaths, births, communicable diseases, and bacteriological examinations. The final report is the annual one in which the following information concerning vital statistics is given :

Causes of deaths by months according to International Classification of Diseases.
Table of deaths by months according to nativity, age, color, sex and social relation.
Table of deaths by wards according to sex, color, age and residence with addition of deaths due to premature births and of still births.
Table of births by months according to sex, color, and nativity of parents.
Table of births by wards according to sex, color, nativity of parents and attendant at birth.
Table of births and deaths for last ten years.
Table of comparative population, number of deaths and death rates for last five years.
Tables of cases of reportable disease (diphtheria, scarlet fever, small-pox, typhoid fever, measles, tuberculosis, poliomyelitis and whooping cough) by months according to wards.

It may be readily seen from the foregoing list that altho in most respects the statistical data is satisfactorily full yet there are a few things lacking. There are no birth rates given, no infant mortality rates, and no death rates for principal diseases—without which information no report of vital statistics could be considered absolutely complete. Also while St. Paul is to be congratulated on having data in mortality statistics compiled according to ward, sex, age, and color, two other important correlations are neglected, namely—deaths according to ward and nativity, and according to ward and cause.

Medical Work of the City and County Board of Control

The medical service performed by the Board of Control of St. Paul and Ramsey County falls into three divisions—that of the City and County Hospital, which is discussed at length under the general classification of Hospital Facilities, the work of the City and County Physicians, and the Free Dental service of the City and County.

The City and County Physicians are three in number,—a Chief who is also Superintendent of the City and County Hospital and two assistants. Their work, other than that performed by the Chief as Superintendent of the City and County Hospital, is the provision of medical service for all those cared for by the City and County because of want, contagious diseases (small-pox or tuberculosis) or criminality. According to the annual report of the Board of Control for 1917 their work for the needy in St. Paul and Ramsey County comprised the following:

| | |
|-------------------------------------|-------|
| City Calls | 2,978 |
| Office consultations | 9,248 |
| Visits to Ramsey County Poor Farm.. | 44 |

The contagious disease work of the City and County physicians is confined to professional visits to the Dale Street Infirmary (small-pox hospital) and the City and County Sanatorium, (tuberculosis hospital). In the 1917 report of the Board of Control, 18 visits were reported to the latter institution and 19 to the former. More detailed discussion of the work of the City and County Sanatorium has already been made under the larger heading of Tuberculosis Control in St. Paul.

The penal institutions which depend upon the City and County Physicians for medical service are the Workhouse, County Jail, and Central Police Station. No regular medical examination of the inmates is made at the time of their detention, but one of the physicians is called whenever needed. At the workhouse there has just been instituted a special attempt at venereal disease treatment which is described more fully under the chapter on Venereal Diseases, but the work has not been carried on for a long enough period of time for a definite report of results accomplished.

The Free Dental service of the City and County is maintained by the Board of Control at the St. Paul Free Dispensary. In 1917 there were two dentists whose work for the year was as follows:

| | |
|-------------------------------|-------|
| Examinations | 1,916 |
| Prophylactic treatments | 1,748 |
| Instructions | 1,737 |
| Pulps removed | 220 |
| Root Canal fillings | 269 |
| Cement fillings | 212 |
| Alloy fillings | 685 |
| Copper cement fillings | 383 |
| Treatments | 1,705 |

Anaesthetics:

| | |
|---------------|-------|
| General | 1,056 |
| Local | 469 |

Extractions:

| | |
|-----------------|-------|
| Permanent | 807 |
| Deciduous | 2,798 |

Total 14,005

There were during the year 1917, 1,386 new and 2,031 old patients, making a total of 3,417.

Venereal Diseases

The City Health Bureau has no organized work for the prevention or cure of venereal disease, the most that it does being the payment for the services of a physician engaged in venereal disease work at the Workhouse. This work has been in progress such a short time,—since June 1, 1918, that it is not yet in good working order. The plan is that all men and women arrested and held for court sentence for reasons involving public morals, shall be examined for the presence of venereal disease before being taken before the judge for sentence. There are no clinics held at the Workhouse, but merely hospital accommodation for those inmates having venereal disease. At present, however, the hospital ward is not being used, since there is no nurse provided to be in charge of it. It is expected that this deficiency will be remedied in a short time however. Also there is a possibility that a night matron will be installed. The ward has accommodations for 15 patients but up to this time all patients have been cared for in the cells. The women have been treated by the matron to the best of her ability altho she is not a trained nurse. Such care as is necessary for the men patients is given by the City and County Physician. The length of stay at the workhouse for treatment depends on the individual case, but averages about thirty days.

From the beginning of the work in June 1918 to December 31, 1918 there were treated at the Workhouse 38 cases of venereal disease. 28 of these were cases of gonorrhea, 20 of which were women, 9 were of syphilis, 8 of which were women, and in 1 case a woman was infected with both gonorrhea and syphilis.

At the present time there are being treated at the Workhouse 8 females and 5 males, which includes 2 males not sent there for treatment but found upon examination to have the disease.

Other work of a more general nature for the cure and prevention of venereal diseases is carried on entirely separately from municipal administration, being under the auspices of the State Board of Health, the United Charities, and the Wilder Charity Nurses. Further discussion of this work is given in relation to the whole health program of the United Charities.

Mental Hygiene

The only provision made by the City for work in Mental Hygiene is the employment by the Department of Education of a specialist in mental testing. Her work is primarily the testing of school children in which respect she is employed in the capacity of Supervisor of Special Classes, but her services are available also for the Juvenile Court, the State Board of Control, the Probate Court, the District Court, charitable organizations and private individuals. Such cases are referred to her as Psychologist of the Psycho Medical Clinic held three times a week, Monday and Wednesday afternoons and Saturday mornings.

All cases found subnormal are reported to the State Board of Control. The mental tester has no authority to compel institutional care, or in fact any kind of treatment, but she makes suitable recommendations and urges their acceptance. There naturally is little chance for follow-up work in anything but the school work, since her first duty is to the latter. In the school work, however, more strict account is kept of the cases. Every year the mental tester makes a survey of the schools where-by she picks out all the children retarded two years or more, except those for whose retardation there is a legitimate excuse such a recent arrival in this country and ignorance of the language, and examines them for mental abnormality. Those which show such abnormality are placed in special classes, of which there are five for exceptional children, one for deaf, and six for children with defective speech. The total number of cases tested and assigned to these classes from June 1917 to June 1918 was 289.

Educational Work

In the spring of 1917 a Health Week was held under the auspices of the St. Paul Association. The Bureau of Health paid for a director of the Week and was one of the exhibitors. Other exhibitors were the City and County Hospital, State Hospital for Crippled Children, St. Paul Baby Welfare Association, St. Paul Free Medical Dispensary, Dental Exhibits by the St. Paul District Dental Society and United Charities, Department of Public Works, Open Air Class Room by Board of Education and United Charities, School Nurses, Public Library, Neighborhood House, Children's Preventorium, Playgrounds Department, University of Minnesota Farm School, Home Economics and Dairy Departments, State Bureau of Labor and Industries, Department of Weights and Measures.

St. Paul can also boast of a Baby Week held in the same year—1917—altho not under the auspices of the Health Department either, but under those of a private organization, the Baby Welfare Association.

On the whole what educational health work is done by the city seems to be of a routine nature rather than that of propaganda, the initiative of which at least it leaves to outside organizations, altho being very ready with its approval and assistance.

Health Budget

In the year 1917 the total expenditure incurred by the Bureau of Health was \$93,217.93. This includes salaries and expenses paid for the public baths, the public comfort station, and the dog pound. Without the expenditures for these three divisions the total sum was \$61,715.42, making a per capita cost of 24.4 cents for a budget unquestionably of a health nature. That this is very much too low a per capita allowance is obvious to any one at all conversant with public health affairs. According to the authors of the New Haven Health Survey, "It is generally recognized that between 40 and 50 cents per capita is essential for the maintenance of a thoroughly efficient health department. The Committee on Organizations and Functions of Municipal Health Departments of the American Public Health Association recommends 45 cents as a standard."* The amount per capita spent on the conservation of health in other cities of approximately the same population as St. Paul is given below. The figures are for the year 1915 and taken directly from the United States Census publication.**

| City | Per Cap. Cost of Health Conservation | City | Per Cap. Cost of Health Conservation |
|---------------------------|---|----------------------------|---|
| New Bedford, Mass..... | 0.68 | Rochester, N. Y..... | 0.28 |
| Hartford, Conn..... | 0.68 | Oakland, Cal. | 0.28 |
| Cambridge, Mass. | 0.66 | Denver, Colo. | 0.28 |
| Providence, R. I..... | 0.61 | Butte, Mont. | 0.27 |
| Fall River, Mass. | 0.58 | Paterson, N. J..... | 0.26 |
| Seattle, Wash. | 0.53 | St. Paul, Minn..... | 0.25 |
| Springfield, Mass. | 0.52 | Columbus, O. | 0.25 |
| Louisville, Ky. | 0.51 | Spokane, Wash. | 0.23 |
| Syracuse, N. Y. | 0.49 | Lowell, Mass. | 0.21 |
| Worcester, Mass. | 0.47 | Indianapolis, Ind. | 0.21 |
| Lawrence, Mass. | 0.44 | Akron, O. | 0.21 |
| Grand Rapids, Mich. | 0.44 | Tacoma, Wash. | 0.19 |
| Washington, D. C..... | 0.43 | Portland, Ore. | 0.18 |
| Memphis, Tenn. | 0.40 | Kansas City, Kans. | 0.09 |
| Trenton, N. J. | 0.35 | Jersey City, N. J..... | 0.18 |
| Bridgeport, Conn. | 0.35 | Toledo, O. | 0.17 |
| Salt Lake City, Utah..... | 0.34 | Reading, Pa. | 0.16 |
| Nashville, Tenn. | 0.33 | Dayton, O. | 0.16 |
| Albany, N. Y..... | 0.33 | Wilmington, Del. | 0.14 |
| Waterbury, Conn. | 0.32 | Camden, N. J. | 0.13 |
| Omaha, Neb. | 0.31 | Scranton, Pa. | 0.12 |
| New Haven, Conn. | 0.30 | Kansas City, Kans. | 0.09 |
| Minneapolis, Minn. | 0.29 | Youngstown, O. | 0.08 |

Fourteen cities out of the total forty-five other than St. Paul spend less than 25 cents per capita. Of the other thirty-one cities spending more than that amount, fourteen—Washington, Seattle, Providence, Louisville, Worcester, Syracuse, Memphis, Fall River, Grand Rapids, New Bedford, Cambridge, Hartford, Springfield, and Lawrence—spend the required 40 to 50 cents or more per capita.

Some changes of recent date have been made in the salary schedule

*Health Survey of New Haven, p. 94.

**Bureau of the Census, Bulletin 132, p. 68.

of the employes of the Health Bureau in St. Paul through a civil service ordinance effective Feb. 4, 1919, and these changes bring up the per capita cost to 30 cents for health protection exclusive of expenditures for Harriet Island public baths, the comfort station, and the dog pound. The salaries of the employes of the Health Bureau proper as they stand at the present time are as follows:

| | |
|---|-------------|
| Health Officer | \$ 4,000.00 |
| Deputy Health Officer..... | 2,500.00 |
| Junior and Senior Stenographer, 720-780, now getting | 720.00 |
| Senior Clerk (statistician) 1,020-1,260, now getting.. | 1,260 |
| Typist Clerk, 1,020-1,260, now getting..... | 1,080.00 |
| General Bookkeeper | 1,440.00 |
| Laboratory Assistant, 1,140-1,500 (none at present) | |
| Laboratory Helper, 480-600, now getting | 480.00 |
| Chief Dairy Inspector | 1,740.00 |
| 2 Assistant Dairy Inspectors, each | 1,380.00 |
| Live Stock Inspector V. S..... | 1,620.00 |
| Laborer Assistant V. S., for 3 months, day..... | 2.80 |
| Chief Sanitary Inspector..... | 1,740.00 |
| 14 Sanitary Inspectors, 1st yr. 100, 2nd 105, 3rd 110, 4th 115. | |
| 1 Italian | 1,260.00 |
| 1 Italian | 1,320.00 |
| 12 including Hotel Inspector and TB Sanitary Inspector, each | 1,380.00 |
| Food Inspector, 1,200-1,500, now getting..... | 1,500.00 |
| 3 Meat Inspectors | |
| 1 Meat Inspector getting | 1,500.00 |
| 2 Meat Inspectors getting, each..... | 1,320.00 |
| 5 Part Time Medical Inspectors (including 1 for TB.) 1,260-1,500. | |
| 2 Medical Inspectors getting each..... | 1,260.00 |
| 3 Medical Inspectors getting each | 1,320.00 |
| Chaffeur, 900-1,200, none at present | |
| Supt. Dale Street Infirmary | 600.00 |
| Nurse Dale Street Infirmary, 600-750, now getting.. | 750.00 |
| Yardman Dale Street Infirmary | 600.00 |
| Nurse in charge of Tb. Div., 1,260-1,620, now getting | 1,620.00 |
| 6 Nurses Tb. Division, 1,020-1,260, now getting, each | 1,140.00 |
| Bacteriologist, 1,820-2,100, now getting..... | 2,100.00 |
| Senior Clerk Stenographer Tb. Div. 1,020-1,260, now getting | 1,080.00 |
| Matron Tb. Div., 600-780, now getting | 780.00 |

To the list of salary expenditures must be added an amount to cover incidentals and running expenses which in 1917 amounted to \$11,306.74. Using that figure as a basis if we add \$12,000 to the present salary cost it gives a total of \$79,211.60, or a per capita expenditure of 30 cents.

A number of additions to the above listed working force should be made and they are as follows:

- 1 Laboratory Assistant (Making a total of 2)
- 1 Statistician (Making a total of 1)
- 2 Dairy Inspectors (Making a total of 4)
- 6 Sanitary Inspectors (one for hotel inspection especially, making a total of 20)
- 1 Food Inspector (Making a total of 2)
- 4 Nurses Tb. Div. (Making a total of 10)
- Full time Medical Inspection (Making a total of 4)

For salaries of the above the schedule now in use would of course be used, with the exception of the Statistician and the *full time* Medical Inspection for which there is no provision. A trained statistician should be employed at a salary of \$1,800.00 to relieve the Senior Clerk of the statistical duties for which he is not trained. For medical inspection only 4 men need be employed but they should be required to give full time at a salary of \$2,500 each or \$10,000 for the whole of the medical inspection work. Taking the above addition in salaries and those now employed at their maximum since in a short time they will have automatically reached the maximum, the total expenditures for salaries would be \$92,031.60, an excess over that at the present time of \$24,820.00. Adding to the proposed expenditure \$12,000 to cover running expenses, the total would be \$104,031.60 or a per capita expenditure of 40 cents. It should be observed that the proposed changes would bring St. Paul barely within the list of cities spending the required amount of 40 to 50 cents per capita, altho it falls slightly below the 45 cents which is the recognized standard of the Committee on Organizations and Functions of Municipal Health Departments of the American Public Health Association.

Sanitary Supervision of Schools

The city's instrument for carrying on its health work in the public schools is not the Health Bureau, but the Division of Hygiene, Department of Education. Whether or not this is a fortunate placement of school health work depends largely upon the amount of co-operation between the Division of Hygiene in the Department of Education and the Health Bureau, Department of Public Safety. Health work in the hands of the Department of Education gains on the one hand in logical and intimate connection with the schools, but loses on the other in the strength that one central control over all public health matters, school and otherwise, would bring. What is lacking in centralization may possibly be compensated for by co-operation between the two departments, but there is one deficiency in the workings of school hygiene under the Department of Education that can not be remedied in such a manner,—that is, the lack of authority of the Department of Education to reach the parochial and private schools. There are in the city 40 parochial and private schools with an enrollment of 9,546 pupils of school age; if children over sixteen years of age were included the figure would be somewhat larger. The public school enrollment for last year was 30,572, making a total of 40,118 children attending school in St. Paul. This means that a fairly high proportion of school children, 23.79% of the total 40,118, are outside of the jurisdiction of the city's school health work, and get the benefit of it only as the parochial and private schools voluntarily co-operate, as they do in the case of epidemics and a certain amount of educational health work (Oral Hygiene lectures, etc.)

The aim and specific objects of the Division of Hygiene are concisely stated in a set of rules and regulations drawn up for the benefit of the working force and are quoted here:

"The aim of the Division of Hygiene is to assist in obtaining the maximum of efficiency in the educational system with the conservation of good health. The method is educational rather than operative; how to prevent and protect, and not the treatment of the disease.

The specific objects are:

1. The control of sanitary and hygienic conditions in the schools.
2. Detection and correction of physical defects.
3. The discovery and treatment of cases of mental deficiency.
4. The detection and exclusion of parasitic and contagious diseases.
5. The bringing to the homes and the parents the knowledge of child hygiene.
6. Making possible to obtain the maximum of efficiency in the educational system with the conservation of good health."

The working force of the Division of Hygiene normally consists of 1 medical inspector who is Director of the Division and directly responsible for its conduct to the Superintendent of Schools; 1 chief nurse, 13 school nurses, 1 supervisor of special classes and an office secretary. All the employes have been under civil service examination since 1914. At present some of the force are left-overs from the old regime, since there have been but 4 vacancies occurring since 1914 and filled by civil service examination, those of Chief School Nurse, Medical Inspector and two school nurses. The Medical Inspector is a part-time employe, paid by the hour for not more than 15 hours a week, altho he must be within reach of the Division at any time. His duties according to the above mentioned statement of rules and regulations are to examine all children referred to him by teachers or nurses as cases of contagious diseases, all children who have been absent for illness, or for any indefinite or unassigned cause, all children returning after a previous exclusion, all children (except those excused because of objections of parents) who are suspected of physical and mental defects, and, whenever ordered by the Supervisor of Hygiene, to make complete physical examinations of each child unless such child is properly excused, and to record the results on the physical record card of the child. Furthermore, he has general duties in inspecting from time to time, the general condition of the school buildings from the point of view of sanitation, and making a report of his findings to the Supervisor of Hygiene.

The duties of the Chief Nurse may be quoted directly from the rules and regulations drawn up by the Division and are as follows:

"The Senior Nurse shall be responsible directly to the Director of Hygiene. She shall see that his instructions and orders are properly carried out by the school nurses. Her duties shall be to supervise the school work of the nurses; see that the 'Instructions to School Nurses' are complied with; inspect the daily reports, make a consolidated monthly report of the work; keep up the map for contagious diseases and card file for individual schools; see that the follow-up work of the school nurse is properly conducted and obtain reports from the Free Dispensary and other sources of checking the

follow-up work. During the existence of an epidemic in a school, she shall visit the regular nurse frequently and consult with her concerning the control of the epidemic."

"She shall see that a school nurse is at the school when the Medical Inspector is working and that the school nurse co-operates with and carries out the instructions of the medical Inspector. She shall see that the proper physical records are made and inform the office of the Director of Hygiene when the services of a Medical Inspector are required."

The school nurses are on duty from 8:45 A. M. to 5:00 P. M. except on Saturday when the hours are from 8:45 A. M. to 12:00 M. They average three schools a day, two in the morning and one in the afternoon. Besides routine examinations and consultations with teachers and parents, the nurses do as much home visiting as they have time for, and such follow-up work as is necessary, particularly in the way of taking children to the hospital or dispensary. Daily written reports are made by the nurses to the Division of Hygiene, and in the case of infectious and quarantinable diseases the nurses must report immediately by telephone to the office of the Division.

The Supervisor of Special Classes has under her charge the classes for Subnormals, Defective Speech Classes, Class for Deaf, Open Air School, Boys' Farm and Girls' Home.

The duties of the Office Secretary, besides the office routine of correspondence, telephone calls, filing of requisitions, etc., are to report cases of contagious diseases to the Health Bureau, to notify the various schools of reports from the Health Bureau, and to make appointments for mental tests and to keep the records of the same.

The working force of the Division of Hygiene has met with quite a number of changes during the last year owing to the exigencies of war. In May, 1917, the Director of Hygiene obtained a leave of absence for war work and until the beginning of the school year in 1918 his place was not permanently and satisfactorily filled. The Division was to have been allowed two part-time medical inspectors last year, but since, owing to the present shortage of medical men, only one reported for the civil service, the examination was postponed and a temporary appointment was made for part-time work, but his resignation in May again forced a temporary appointment in the Division with which to finish the year. In spite of so much re-adjustment there was a satisfactory amount of work done, for not only did the Medical Inspector examine all special cases sent to him by the nurses, and the boys in athletics in three of the High Schools, but he made a systematic examination of every child in one of the schools, the Lincoln, in co-operation with the newly established Health Center of the Wilder Charity in that district, and examined every child in the special classes. A number of nurses' places also had to be refilled because of resignations for war work, but in spite of the consequent confusion there was in 1917-1918 a gratifying increase in work over that done the year before, as the following report shows:

WORK DONE BY NURSES IN 1916-1917

The following tabulation shows the work done by the Nurses during the fiscal year 1916-1917.

- 5,475 visits were made to schools.
- 7,270 home visits were made, 217 of which were for cases of truancy.
- 243,299 pupils seen by the nurses for various reasons.
- 18,441 physical examinations were made.
- 17,496 examinations for pediculosis.
- 66,497 miscellaneous examinations were made including class room examinations for contagious diseases.
- 919 parents consulted the school nurse.
- 17,456 parents notified.
- 8,048 children excluded from school, 10,729 readmitted.
- 701 referred to charitable organizations.
- 16,580 cases of communicable disease were found in the schools.
- 2,718 were found in homes.
- 8,048 children excluded on account of contagion.
- 3,678 cases reported to Health Bureau for quarantine.
- 22,545 treatments given in schools. Most of these children would otherwise have been excluded.

WORK DONE BY NURSES IN 1917-1918

The following tabulation shows the work done by the Nurses during the fiscal year 1917-1918.

- 6,246 visits were made to schools.
- 6,884 home visits were made, 146 of which were for cases of truancy.
- 295,787 pupils were seen by the nurses for various reasons.
- 23,498 physical examinations were made.
- 24,907 examinations for pediculosis.
- 165,397 miscellaneous examinations were made including class room examinations for contagious diseases.
- 1,182 parents consulted the school nurses.
- 7,429 children excluded from school, 12,758 readmitted.
- 179 families referred to charitable organizations.
- 2,020 cases of communicable diseases were found in the homes.
- 7,345 children excluded from school on account of contagion.
- 3,080 cases reported to the Health Bureau for quarantine.
- 24,943 treatments given in schools. Most of these children would otherwise have been excluded.

There were an unusually large number of cases of contagious diseases in the schools during the year 1917-1918, the total percentage for each disease being as follows:

| <i>Disease</i> | <i>No.</i> | <i>%</i> |
|---------------------------------|------------|----------|
| Diphtheria | 264 | .86 |
| Scarlet Fever | 352 | 1.14 |
| Measles | 199 | .64 |
| Pertussis | 796 | 2.60 |
| Small-pox | 134 | .43 |
| Chicken-pox | 396 | 1.29 |
| Mumps | 112 | .36 |
| Rubella (Liberty Measles) | 1294 | 4.23 |

For the year 1916-1917 we have been able to acquire data on contagion in the schools of five other cities of approximately the same size as St. Paul, in consequence of which the following Table has been made:

St. Paul stands third in the list of six cities in its percentage of all the diseases, and so far as the diseases taken individually are concerned it seems to show fairly normal conditions.

TABLE XXV.

Showing Number of Exclusions Due to Contagious Diseases in the Public Schools of St. Paul and Eight Other Cities, 1916-1917.

| KINDS OF DISEASE | | | | | | | | | | | | | | | | | |
|-------------------|-------------------|---------|-------|------------|------|---------------|------|-----------|-----|----------|-----|---------------|-----|---------------------------|-----|-------|-------|
| City | School Enrollment | Measles | | Diphtheria | | Scarlet Fever | | Pertussis | | Smallpox | | Poliomyelitis | | Cerebro-spinal Meningitis | | Total | |
| | | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| Houston, Texas | 21,905 | 133 | .60 | 23 | .10 | 19 | .08 | 41 | .18 | 0 | 0 | 0 | 0 | 0 | 0 | 216 | .98 |
| Minneapolis Minn. | 48,038 | 452 | .94 | 245 | .51 | 336 | .69 | 131 | .27 | 190 | .39 | 15 | .03 | 0 | 0 | 1,369 | 2.84 |
| New Haven, Conn. | 26,822 | 1,808 | 6.79 | 193 | .72 | 46 | .17 | 31 | .11 | 0 | 0 | 4 | .01 | 0 | 0 | 2,082 | 7.76 |
| Portland, Ore. | 24,089 | 4,004 | 16.62 | 49 | .20 | 704 | 2.92 | 46 | .19 | 47 | .19 | 2 | .01 | 3 | .01 | 4,855 | 20.15 |
| St. Paul, Minn. | 30,572 | 1,657 | 5.42 | 220 | .71 | 192 | .62 | 34 | .11 | 17 | .05 | 13 | .04 | 12 | .03 | 2,145 | 7.01 |
| Waterbury, Conn. | 14,172 | 227 | 1.60 | 230 | 1.62 | 17 | .12 | 6 | .04 | 0 | 0 | 13 | .09 | 0 | 0 | 493 | 3.47 |

In the following Table is given for 1917-1918 the number of children for whose treatment the school nurses have been either directly or indirectly responsible:

| | |
|--------------------------|--------|
| Dental Work | 11,091 |
| Medical treatment | 407 |
| Surgical treatment | 105 |
| Eyes treated | 1,683 |
| Nose and throat | 1,103 |
| Ears treated | 103 |
| Skin treated | 52 |
| Orthopedic | 11 |
| Children's Dept. | 5 |
| Miscellaneous | 150 |

Below are given the number of visits made during 1917-1918 to the St. Paul Free Dispensary by school children referred there by the school nurses:

| | |
|-----------------------------|-------|
| Eye Department | 1,505 |
| Dental Department | 2,050 |
| Nose and Throat | 492 |
| Skin Department | 302 |
| Children's Department | 348 |
| Orthopedic Department | 29 |
| Surgical Department | 70 |
| Medical Department | 25 |
| Ear Department | 47 |

Dental hygiene campaigns have been a normal feature of school medical work since the school year 1915-16, altho the work was temporarily dropped last year. The last dental hygiene campaign, that of the year 1916-17 was very successful. There were appropriate motion pictures and lectures by ten different dentists. There was cause for congratulation for the co-operation not only of the public school nurses, but of the parochial schools as well.

There are at present two school dental clinics, which were started originally by private organizations and taken over by the City in November, 1917. Their work has gone on successfully in spite of the lack of a dental hygiene campaign, as can be readily seen from the following:

EDISON SCHOOL CLINIC

| | |
|--------------------------|-----|
| Permanent Fillings: | |
| Amalgam | 220 |
| Cement | 90 |
| Gutta percha | 35 |
| Deciduous fillings | 12 |
| Extractions | 54 |
| Treatments | 61 |
| Cleanings | 83 |
| Appointments | 474 |

Thirty-six hours given for instruction in oral hygiene and use of tooth brush.

CLEVELAND SCHOOL CLINIC

| | |
|----------------------------------|-----|
| Permanent Fillings: | |
| Amalgam | 547 |
| Cement | 63 |
| Gutta percha | 35 |
| Lead | 9 |
| Extractions: | |
| Deciduous | 319 |
| Permanent | 1 |
| Treatments | 133 |
| Examinations and cleanings | 197 |
| Appointments | 715 |

Besides the purely medical work in the nurses daily routine there are nurses' meetings and lectures, with occasional educational expeditions to outside institutions such as the University Hospital in Minneapolis, and the State Hospital for Crippled Children at Phalen Park, St. Paul. Also the nurses are at times called upon to do some educational work themselves outside of strictly school routine, as is indicated by the fact that for the last two years a six weeks' course has been conducted in co-operation with the City and County Hospital whereby student nurses are enabled to go with the school nurses on their rounds and so get considerable practical experience in school health work. Some of the nurses from the Minnesota Public Health Association have also availed themselves of the same privilege, and in the spring of 1918 nurses taking the University of Minnesota Extension course in Social Service organized by the Wilder Charity, Department of Social Service, put in part of their volunteer field work with the school nurses on their rounds.

As to the educational part of school work proper, there are various classes such as those for Little Mother's clubs, Personal Hygiene and First Aid which are a success but could be further developed. Also there are special classes which lie fully as much in the field of hygiene as in that of pedagogy,—one Fresh Air Class, one class for the deaf, six defective speech classes and four classes for the subnormal. In the Fresh Air Class particularly, success depends largely on building up the children physically before attempting to reach a high educational standard, and the same is true in varying degrees for the "ungraded room" found in ten of the schools which are for backward children and not for mental or other kinds of defectives, and which receive merely the regulation health supervision of all the schools.

A final word before finishing the discussion of the Division of Hygiene and its efficiency must be said regarding the accommodations and equipment given to the school nurses. There has undoubtedly been a sad lack in this respect, and there still is much to be done altho something at least has been accomplished during this last year when one of the schools fitted up a very comfortable room especially for the nurse, several other schools provided new desks for the nurses, and two schools put in extension telephones for the nurse's convenience. But even with these improvements the conditions at present are such that while in 22

schools the nurses have a room in which to work, in 4 schools they work in cloakrooms, in 16 schools in the halls, in 8 in the classrooms, in 1 in the library, in 2 in the principal's office and in 3 they have basement rooms. It surely is unnecessary to dwell upon the loss in efficiency which must result from such unsystematic arrangements. As soon as possible suitable rooms should be put at the disposal of the school nurses, should be properly equipped and supplied with telephones, preferably of the extension variety to connect with each of the rooms as well as with the outside.

In regard to data on the sanitation of school buildings we are fortunate in having at hand the "Report of a Survey of the School System of St. Paul, Minnesota" which appeared in print in the spring of 1918, and which contains more complete information on the sanitary conditions of school buildings than would be feasible to attempt to acquire for this health survey, information which, because of the recent date of the above mentioned publication is as up-to-date as is necessary for practical purposes. Part of the Survey work was done by the school nurses, and a general summary of their findings as given by the Survey Report is listed below, supplemented by similar findings of the school nurses in their regular sanitary survey of 1917-18.

1. 28 schools reported the feather dusters as being used.
(The number of schools using feather dusters was found to have been reduced to 8 in 1917-18).
The practice of using the feather duster cannot be too strongly condemned.
2. The most efficacious method of disinfecting is the cleaning of the desks, floors and toilets with a standard disinfecting agent. This is far superior to fumigation.
3. 13 schools were reported as not opening the windows during recess. In previous years there were rules that required all windows to be opened during recess and other stated periods. (The nurses in 1917-18 found 14 schools guilty of not opening windows at recess).
4. 13 schools reported as having glossy blackboards.
(The number increased to 14 in 1917-18).
5. 28 schools reported as having the temperature of the room above the maximum (In the survey of 1917-18 there were found 17 schools which had temperatures of rooms either above or below the normal).
6. 7 schools were reported as having rooms with insufficient light. (This number was found reduced to 2 in the survey of 1917-18).
7. Opaque shades are still used in forty-three schools. (There has been a big drop in this number in 1917-18, from 43 to 23).
8. 17 schools were reported with walls too dark. (Only 8 schools now have walls too dark).
9. No effort to adjust the seats to pupils was reported in 13 schools.
10. Unsatisfactory cloakrooms were reported in 14 schools. (Same condition in 1917-18).
11. 13 schools were not provided with ventilating screens. (The number of schools without ventilating screens is now 8).
12. Only 9 schools were provided with soap, water and towels. (There are now 24 schools having provision for soap, water and towels).
13. 20 schools were reported without sanitary drinking fountains, and in two schools the common drinking cup was found. (The number has now been reduced to 11).
14. Provision is made in the entire 63 schools for only 1,228 children to obtain a drink of water at the same time. In 8 of the schools only 1 child can obtain a drink at a time.

The rest of the sanitary findings of the School Survey may be given under their proper headings, used in the report, Toilet Facilities in Ele-

mentary Schools, Water Supply, Heating and Ventilating Systems, and Lighting of Classrooms, abstracts of which findings follow in their respective places.

TOILET FACILITIES IN ELEMENTARY SCHOOLS*

In addition to the larger part of the equipment generally placed in the basement or ground floor, each other floor should be provided with emergency toilets. Separate toilets should be provided for kindergarten children and placed in a room adjacent to the kindergarten room. Offices, teachers' rooms, auditoriums, gymnasiums, dressing rooms and janitors' quarters should be equipped with toilet conveniences.

Adequate provision of toilet facilities requires one seat for each 25 boys, one urinal stall for 20 boys and one seat for each 15 girls.

The types of fixtures installed in the St. Paul schools are in general satisfactory.

Lavatories are insufficient in number and useless because no paper toweling, soap, or hot water are provided.

Toilet paper is dispensed from a single roller, which at the rest hour is entirely insufficient.

TABLE XXVI.

*Showing Sufficiency of Toilet Accommodations.***

| Per cent. of sufficiency | Boys' toilet seats | Boys' Urinals | Girls' toilet seats |
|-----------------------------|-----------------------|------------------|------------------------|
| 21-30 | 0 | 2 | 0 |
| 31-40 | 1 | 0 | 0 |
| 41-50 | 0 | 1 | 1 |
| 51-60 | 0 | 3 | 1 |
| 61-70 | 5 | 4 | 3 |
| 71-80 | 7 | 4 | 6 |
| 81-90 | 6 | 8 | 4 |
| 91-100 | 3 | 8 | 7 |
| 101-125 | 10 | 7 | 13 |
| 126-150 | 9 | 8 | 11 |
| 151-200 | 4 | 6 | 4 |
| Over 200 | 7 | 1 | 2 |

Standard of sufficiency—

1 toilet each 25 boys.

1 toilet each 15 girls.

1 urinals each 20 boys.

With a few exceptions toilet rooms are clean and as well kept as conditions of location will permit.

Ventilation by means of the windows is the only method possible in toilet rooms and this is not resorted to in cold weather. As a result, the air from the toilets penetrates to all parts of the building. In some instances it is actually forced into classrooms by fans.

WATER SUPPLY***

1. Drinking facilities.

St. Paul's schools are very poorly equipped with drinking fountains. In many of the buildings no drinking facilities of any kind are provided.

*Abstract of Findings in the School Survey Report.

**Table from Survey Report, p. 119.

***Abstract of findings in the School Survey Report.

At common wash basin faucets in the toilet rooms, either individual cups owned by students are generously passed around or children drink by placing heads in the wash bowls with their mouths over the faucet.

It will be noted that in 11 buildings housing 4,371 children, or 17.6% of the entire enrollment, no drinking facilities are provided. This is a condition unparalleled in any city comparable with St. Paul from which similar data are available.

TABLE XXVII.

*Showing Comparison of the Drinking Facilities of St. Paul Elementary Schools with those of Salt Lake City and Denver.**

| No. of Children per Fountain | ST. PAUL | | SALT LAKE | | DENVER | |
|---|------------------|-----------------------|------------------|-----------------------|------------------|-----------------------|
| | No. of Bldgs. | Per cent of Bldgs. | No. of Bldgs. | Per cent of Bldgs. | No. of Bldgs. | Per cent of Bldgs. |
| Less than 25 | 0 | 0 | 2 | 6.6 | 3 | 6.2 |
| 50 to 49 *** | 9 | 16.6 | 3 | 10.0 | 12 | 22.2 |
| 50 to 74 | 9 | 16.6 | 11 | 36.6 | 22 | 40.6 |
| 75 to 99 | 3 | 6.2 | 9 | 30.0 | 5 | 9.2 |
| 100 to 124 | 5 | 9.2 | 3 | 10.0 | 2 | 3.6 |
| 125 to 149 | 1 | 1.8 | 0 | 0.0 | 5 | 9.2 |
| 150 or over | 15 | 27.7 | 2 | 6.6 | 5 | 9.2 |
| No. of buildings with no drinking fountains .. | 12 | 22.2 | 0 | 0.0 | 0 | 0.0 |
| Per cent of children without drinking fountains | 17.6** | | .00 | | .00 | |
| Per cent of bldgs., standard or above... | 33.2** | | 53.2** | | 69.0** | |
| Per cent of buildings below standard.... | 67.1** | | 46.6** | | 31.2** | |

In buildings in which drinking fountains have been more or less adequately supplied the selection has not been wise, nor the location satisfactory. The type of fountain most commonly found is one from which a child can scarcely drink without touching his lips to the outlet. The fountains are frequently located in the toilet rooms of the basement without regard to the convenience of the children, or other potent considerations. Toilet rooms at their best are not fit places for drinking fountains. Apparently no standard has been recognized in determining the number of pupils per fountain. There should be a jet for about 50 pupils. They should also be graduated in height.

II. WASHING AND BATHING

Almost without exception the number of wash bowls in St. Paul's school buildings is inadequate and the usefulness of those provided is reduced to a minimum by the fact that neither soap, toweling nor warm water is supplied.

Shower baths were found in but two elementary buildings, and a swimming pool in but one of them.

*School Survey, p. 121.

**Percentages incorrect from statistical point of view. Should add up to exactly 100.00.

***Evidently misprint, should be 25 to 49.

The score of elementary school buildings shows that water supply is one of the lowest items on the score. A comparison of this figure with the same items for high school buildings will reveal a gross injustice and neglect of 23,000 elementary school children as against a fair recognition of the needs of 3,833 high school pupils.

HEATING AND VENTILATING SYSTEMS*

The 1914 report of Board of School Inspectors contains financial statement—expenditures amounting to \$132,481.17 for alterations and improvements in heating plants in various school buildings and presumably for ventilating facilities for 12 years, 1898-1910. These investments together with those of 1911-16 period should bring adequate returns. Relatively few reports were made to the Survey committee regarding inability of heating apparatus to maintain adequate temperatures in classrooms. Thermometers are practically useless because of their prevailing inaccuracy throughout the city and should be replaced by accurate ones.

TABLE XXVIII.

*Showing Thermometer Readings in Schools of St. Paul and Denver.***

| | St. Paul | | Denver | |
|----------------------------------|--------------|------------|-------------|------------|
| | No. of Rooms | % of Rooms | No of Rooms | % of Rooms |
| Readings below 60..... | 7 | 3.9 | 14 | 1 |
| Readings either 60 or 61..... | 6 | 3.3 | 25 | 2 |
| Readings either 62 or 63..... | 8 | 4.4 | 56 | 4.8 |
| Readings either 64 or 65..... | 20 | 11.0 | 109 | 9 |
| Readings either 66 or 67..... | 38 | 21.0 | 160 | 13 |
| Standard either 68 or 69..... | 37 | 20.4 | 343 | 29 |
| Readings either 70 or 71..... | 37 | 20.4 | 248 | 21 |
| Readings either 72 or 73..... | 15 | 8.3 | 113 | 9 |
| Readings either 74 or 75..... | 7 | 3.9 | 61 | 5 |
| Readings either 76 or 77..... | 5 | 2.8 | 14 | 1 |
| Readings either 78 or 79..... | 0 | | 7 | .6 |
| Readings either 80 or above..... | 1 | .4 | 7 | .6 |

Median reading for 181 readings coming from 17 schools in St. Paul is 68.40. School ventilation tested by anemometer in 12 schools, 54 classrooms and in 2 of the 4 high schools, 12 rooms, making a total of 66 rooms tested. Altho the standard requirement is 2,000 cubic feet per hour per pupil for change in air, only 2 rooms out of the 54 elementary rooms approximated this amount. The average amount of air entering these 54 rooms was 811.8 cubic feet, the median amount 629 cu. ft. High school ventilation better. Standard for high school is 2,500 cubic feet per pupil per hour. 3 of the 12 rooms reached the standard, and 6 were above the 2,000 point. Average air intake was 1,696 cubic feet per pupil per hour.

Humidity tests from 181 readings selected at random. Standard humidity is 40% in very cold weather, 50% in ordinary winter weather.

*Abstract of findings in the School Survey Report.

**School Survey Report, p. 120.

Only 16% of readings obtained were above 29% relative humidity and only 7% of readings above 45% relative humidity. Heating system has made air too dry and this should be remedied.

The excessive cost of heating the St. Paul schools is due to the over supply of classroom cubage, and in some cases, the disproportionate amount of corridor space. Present day architects claim that only 32% of the space in a building should be devoted to corridors, stairways, and the like, the remaining 68% being utilized for actual teaching operations. This should be taken into consideration in all future planning for the St. Paul system.

LIGHTING OF CLASSROOMS*

Model classroom should be lighted only from left side with windows banked to within seven feet of the front wall. Of St. Paul's elementary classrooms, 157 approach the standard in being lighted from the left only, but none are constructed with the seven foot space at the front wall. 381 rooms are lighted from the left and rear, making the teachers in those rooms face the light, a situation which must be intolerable during much of the winter time because of the glare reflected from the snow, and which for that reason must cause too many shades to be drawn for adequate lighting. 43 rooms are lighted partly from the front, causing the children to suffer from the glare.

TABLE XXIX.

*Showing Comparison of Lighting in Denver, Salt Lake City and St. Paul.***

| | Denver | Salt Lake | St. Paul |
|--|--------|-----------|----------|
| Lighted from left only..... | 373 | 96 | 157 |
| Lighted from left and rear..... | 220 | 250 | 381 |
| Lighted from right and rear..... | 35 | 3 | 6 |
| Lighted from right only..... | 6 | 2 | 1 |
| Lighted from rear only..... | 2 | 1 | 1 |
| Lighted partly from in front..... | 12 | 39 | 43 |
| Lighted from three sides..... | 8 | 46 | 21 |
| Lighted from four sides..... | 2 | 0 | 0 |
| Lighted from left and right | 0 | 3 | 20 |
| With more than half light from rear..... | 0 | 120 | 68 |
| Lighted from overhead | 0 | 0 | 6 |

Requirement of State Department of Education that in each classroom window area shall equal at least 20% of floor area. Plans of no new building passed which do not meet this minimum. Of 518 classrooms in St. Paul, 348, or 67% have less than the required glass area. Illuminometer tests made in 10 elementary buildings and the Central High School. Of 158 measurements made in all buildings, 43 fall below the minimum standard of 9 foot candles. Artificial lighting either not adequate or improperly placed. Children sometimes compelled to stop all work on dark afternoons because of insufficient light.

*Abstract of findings in the School Survey Report.

**School Survey Report, p. 133.

Color scheme in classrooms should be light buff, light green or grey. St. Paul schools have too much dark buff and dark green. The window shades, which should be of a buff or light sage color, are of all kinds and in all conditions in St. Paul.

Before concluding the subject of school sanitation the following unclassified notes from the Survey Report should be cited:

"Poorly arranged and inadequately equipped basements built at great cost, add largely to fuel and janitor's expenses, but provide frequently no educational facilities."

"Entrances to many buildings were not built for the purpose of providing safety for children."

"Dangerous stairways were constantly evident."

"Corridors in many schools are inadequate. Standard corridor should be wide enough to prevent congestion."

"Ideal method of cleaning is by vacuum cleaning process, which permits thorough cleaning of walls, desks, floors, and chalk rails without raising dust and affords the opportunity for cleaning during school hours. No schools in city use this system."

"Removal of ashes is inadequate."

"Coal bins are inadequate, therefore sometimes schools not sufficiently heated and pupils have to be sent home."

From the data on school sanitary and hygienic conditions here discussed certain conclusions are obvious, and they may be summed up as follows:

Owing to the lack of medical supervision in the parochial and private schools which are outside the province of municipal control, 23.79% of all school children in the city have no medical or sanitary supervision and no inspection of their school surroundings.

It has been noted that there was considerable increase in the prevalence of contagious diseases, especially diphtheria, scarlet fever, pertussis, and small-pox, in the year 1917-1918 as against the preceding year. This would seem to indicate a fact that should be obvious also from general considerations,—namely that the medical and nursing force, especially the former, is entirely inadequate to meet the demand. It is hardly to be expected that one part-time medical inspector should be sufficient to care for the health of 30,572 children and look after the sanitation of their surroundings. At least four full-time physicians should be employed, which would allow about 7,500 children to each, none too *few* children if the work is to be carefully and conscientiously done. Increase in the nursing force would be an improvement also, and without a doubt the usefulness of those now employed would be increased greatly if they were given more room and better and more abundant equipment with which to work.

The conditions of sanitation in the school buildings as revealed by the School Survey Report are on the whole below the accepted standard, and in some cases deplorably so. Importance of remedying the defects along this line as pointed out by the Report can hardly be exaggerated, and it is to be hoped that immediate steps will be taken to bring about the necessary improvements in the extraordinarily important field of school sanitation.

Private Health Agencies

Hospital Facilities

There are ten hospitals in St. Paul, nine private ones besides the City and County Hospital which is under the Board of Control of the City of St. Paul and Ramsey County and where all beds are free.

The private hospitals have a total capacity of 775 beds, and the City and County Hospital a capacity of 800 beds, making a total of 1,575 beds available for hospitalization in the city. This means that St. Paul has 6.68 hospital beds per 1,000 population, which figure compares rather favorably with the few other statistics we have at hand in this matter,—viz: a tabulation given in a community sickness survey made by the Metropolitan Life Insurance Company in 1917:

TABLE XXX. .

*Showing Number of Hospital Beds and Number of Physicians per 1,000 Population in Specified Cities.**

| Cities | Per 1000 general population | |
|-------------------|-----------------------------|------------|
| | Available Hospital beds | Physicians |
| Pittsburgh | 7.1 | 2.0 |
| Boston | 9.8 | 2.7 |
| Kansas City | 5.8 | 3.1 |

Because of war conditions and consequent continual change and depletion of the medical force no satisfactory figures could be obtained regarding the number of physicians per 1,000 population in St. Paul. Undoubtedly in normal times it would not vary greatly from the number quoted above.

All of the ten hospitals in St. Paul care for all kinds of diseases with the exception of contagious disease, altho the City and County Hospital admits all contagious diseases except small-pox. The number of cases treated in all the hospitals during their last fiscal year was 24,946, 8,860 of these being patients in the City and County Hospital.

Because of their private support it is impossible to give a detailed account of any of the hospitals other than the City and County which is, as has been already stated, under the supervision of and responsible to the City and County Board of Control.

The following statistical data regarding the work in the City and County Hospital is taken from the Annual Report of the Board of Control for the year ending December 31, 1917:

| | |
|--|-----|
| Largest number of patients under treatment at any one time.... | 631 |
| Smallest number of patients under treatment at any one time..... | 425 |
| Daily average number of patients | 516 |
| Daily average number of patients and employes | 820 |

*Sickness Survey of Principal Cities in Pennsylvania and West Virginia. By Lee K. Frankel, Ph. D., 3rd Vice-President and Louis I. Dublin, Ph. D., Statistician, Metropolitan Life Insurance Company, New York, 1917, p. 40.

| | |
|---|---------|
| Average number of days' stay by patients | 21 |
| Total number of days' treatment given in hospital..... | 188,520 |
| Number of out patients treated in hospital dispensary | 4,397 |
| Number of calls at patients' homes..... | 5,540 |

Results:

| | |
|--|-------|
| Discharged "well" | 3,603 |
| Discharged "improved" | 3,687 |
| Discharged "unimproved" | 339 |
| Died | 679 |
| Remaining under treatment December 31, 1917..... | 542 |
| Total | 8,860 |

Charitable and Welfare Agencies Devoting Part or Whole Time to Health Work

Of the various organizations doing charitable or welfare work in St. Paul, there are six that give some time at least, to health work, three of the six being in existence for that sole purpose. Those three are The Children's Preventorium of Ramsey County, The St. Paul Baby Welfare Association, and the Minnesota Public Health Association, while the other agencies with Health programs are the United Charities, the Amherst H. Wilder Charity, and the Metropolitan Life Insurance Company.

Description of the work done by these various organizations for the promotion of health is given herewith.

- CHILDREN'S PREVENTORIUM OF RAMSEY COUNTY

The Children's Preventorium has for its object the care of children who have been infected with tuberculosis but in whom the disease is not in active stage. It endeavors by proper care and training to develop their powers of resistance so that they are more nearly immune not only to tuberculosis but to other diseases as well. The work is supported financially by subscriptions and the proceeds of Tag Day. Patients recommended by the visiting nurses of the Tuberculosis Division are examined by a physician on the staff and are admitted by him. The only limitations are those of age and numbers;—ages admitted being from five to twelve years, and the accommodations unfortunately being for only forty-five. The work is carried on under the supervision of a Board of Directors, and is in the immediate care of a medical staff, and a superintendent who is a registered graduate nurse with experience in this line of work. There are also an assistant nurse and a school teacher. The school is on the open-air plan, and is so conducted educationally that the children are up to grade on their return to the public schools.

A few figures showing some of the results of the work for 1917 are as follows:

| | |
|---|-------|
| Number of institution days | 9,541 |
| Average residence, per patient, days..... | 153.8 |
| Average gain, per patient, pounds..... | 4.25 |
| Greatest individual gain, pounds | 19.25 |

The financial statement for the same year is contained in the following:

General Account, year ending December 31, 1917.

| | | |
|--|-------------|-------------|
| Receipts 1915-1916 | \$24,177.11 | |
| Receipts 1917 to date (not including Tag Day)..... | 8,615.35 | |
| Receipts Tag Day, 1917..... | 12,955.19 | |
| General Expense | \$4,814.10 | |
| Furniture and Fixtures | 607.43 | |
| Salary Account | 2,767.92 | |
| Food Supplies | 5,773.88 | |
| Insurance, Taxes, etc | 194.40 | |
| Tag Day Expense | 271.66 | |
| Building Maintenance, Improvements, etc., | 1,450.49 | |
| Total Expenditures | 15,879.88 | |
| Total Expenditures 1915-1916 . | 18,423.53 | |
| Cash on hand Dec. 31, 1917... | 11,444.24 | |
| Total..... | \$45,747.65 | \$45,747.65 |

It has been pointed out already in the chapter on Tuberculosis Control that there is always a waiting list for the Preventorium. In view of the fact that anti-tuberculosis work with children is so important because it strikes at the root of the problem for future generations, it is to be strongly recommended that the facilities at the Preventorium be enlarged so that there may be as little delay as possible in meeting the local needs.

ST. PAUL BABY WELFARE ASSOCIATION

The purpose of the St. Paul Baby Welfare Association is the reduction of infant mortality through the education of mothers. Financially the Association is supported by subscriptions, and also by donations from the Scottish Rite Masons, the Wilder Charity, and from the Board of Control in return for services rendered by the Association. The benefits of the work are open to any suitable person who cannot afford a baby specialist. The Association is an incorporated body affiliated with the national organization, supervised by a Board of Directors, and in the immediate charge of a medical staff and a supervising nurse whose qualifications, other than that of being a registered and graduate nurse, are fixed by the Board of Directors. There are six nurses on the staff besides the supervisor, the salaries of two of these being appointed and paid by the Wilder Charity. Regular baby clinics are held on Mondays, Wednesdays, and Fridays at 12:30 P. M., while there are prenatal clinics on two days a week,—Tuesdays and Thursdays at 1:00 P. M.

The work accomplished in the year ending May 1, 1917, is as follows:

| | |
|-------------------------|-------|
| Babies cared for..... | 1,366 |
| Clinic Attendance | 3,090 |
| Deaths | 40 |

Prenatal clinics opened in July, 1916:

| | |
|------------------------------------|----|
| July to May, cases registered..... | 95 |
| Of those— | |
| 71 delivered. | |
| 68 healthy children | |
| 2 stillbirths | |
| 1 miscarriage | |

The following financial statement is for the year ending April 30, 1918, and involves only the money raised by popular subscriptions, since the Scottish Rite Masons, the Wilder Charity, and the Board of Control make their payments direct from their treasuries so that such funds do not pass through the hands of the Treasurer of the Baby Welfare Association.

RECEIPTS

| | |
|---|------------|
| Cash on hand, May 1, 1917 | \$1,547.59 |
| Total Receipts year ending April 30, 1918 | 5,241.60 |
| | <hr/> |
| | \$6,789.19 |

EXPENDITURES

| | |
|---|------------|
| Auto expenses | \$ 191.87 |
| Salaries (Head Nurse, 2 Asst. nurses and stenographer) | 4,082.46 |
| Printing, Postage, etc. | 126.69 |
| Carfare | 109.00 |
| Laundry | 73.46 |
| Telephones | 45.60 |
| Drugs | 308.39 |
| Incidentals | 22.28 |
| | <hr/> |
| Total expenditure | \$4,959.77 |
| Balance on hand, May 1, 1918 | \$1,829.42 |
| | \$6,789.19 |

Much of the reduction of the infant mortality rate in the last few years, particularly for 1915 and 1916, is due undoubtedly to this organization, which aside from direct care of babies took the initiative in waging campaigns against the use of midwives and for the control of baby farms.

THE MINNESOTA PUBLIC HEALTH ASSOCIATION

The objects of the Minnesota Public Health Association are "to continue the anti-tuberculosis educational campaign inaugurated by the Minnesota Association for the Prevention and Relief of Tuberculosis, and further to promote the cause of Public Health in Minnesota, and to co-operate with state and local authorities in carrying out their programs."

The financial resources of the Association are voluntary contributions and the results of Red Cross Seal sales. This is a State organization and therefore any community in the State receives speakers, literature, exhibits, nurses, and other services upon request. The work is supervised by a board of directors and given immediate attention by an Executive Secretary whose main qualifications are those of a medical man,

experienced in public health and social problems. There are ten nurses on the nursing staff, all of whom work throughout the State having headquarters only in St. Paul. The only work done directly in this city by the Minnesota Public Health Association is propaganda work, one of the main instruments of which being their monthly bulletin, "The Minnesota Health Journal."

A classification of the work done is as follows:

- Anti-tuberculosis work.
- Health work in schools.
- State health insurance.
- Local study clubs.
- Health legislation.
- Field work in the counties where there are sanatoria.

The financial statement for the half year from January 1, 1918 to June 30, 1918 is given below:

| | |
|--|-------------|
| Cash Balance at beginning of Fiscal Year..... | \$ 7,209.13 |
| Total Receipts from sale of Red Cross seals | 49,266.59 |
| Total Receipts from all other sources..... | 2,641.31 |
| Total Receipt for half fiscal year..... | 51,907.90 |
| Total Receipts and cash for one-half the year | 59,117.90 |
| Total Expenses for one-half the fiscal year: | |
| Administrative expenses | 9,617.22 |
| Educational work | 2,673.14 |
| Field and traveling expenses..... | 47.10 |
| Nurses | 9,605.32 |
| Total expenses | 21,943.32 |
| Cash balance in Treasury at close of Fiscal Year | 37,173.71 |

Since the Minnesota Public Health Association is essentially a State organization and since there are several local agencies for tuberculosis prevention, the work of the Public Health Association is necessarily limited in St. Paul to educational work.

HEALTH WORK OF THE AMHERST H. WILDER CHARITY

Besides the more conspicuous parts of the Wilder Charity's health program the Visiting Nurse Department and the Health Center, the institution also pays for the support of two nurses for the Baby Welfare Association, pays for two beds at St. Luke's hospital, and pays for the care of 15 children a month at the Children's Preventorium. An account of the Wilder Charity Visiting Nurse Department and the Health Center are given below.

Wilder Charity Visiting Nurse Department:

The purpose of this agency is "to provide trained nurses to visit, in their own homes, sick persons otherwise unable to secure skilled attendance who cannot or should not be sent to a hospital, and to teach their

family or those attending them how to give them proper care." For its financial resources the work is dependent entirely upon the funds of the Amherst H. Wilder Charity. In no case are the nurses allowed to receive any payment from the people they attend, and if those people are able to pay the regular cost of a trained nurse, they are expected to do so, and are not permitted to receive the care of the Wilder nurses. However, in every case one visit is made to the family calling for nurse's care so that it may be ascertained whether or not the family is able to pay for private nursing. The work is under the jurisdiction and direction of the Wilder Charity, and under the immediate supervision of a head nurse, whose chief technical qualification is to be a registered nurse. The Head Nurse spends part of her time at the Free Medical Dispensary where she is in charge, and the rest in supervision of the other Wilder nurses of whom there are four. A summary of the work accomplished during the year 1916-1917, is as follows:

| | |
|---|-------|
| Total number of patients on visiting list June 30, 1916..... | 119 |
| Total number of patients on visiting list June 30, 1917..... | 122 |
| Total number new patients during year..... | 588 |
| Total number patients during year..... | 707 |
| Total number recorded visits made..... | 8,336 |
| Total number unrecorded visits made | 273 |
| Total number visits made | 8,609 |
| Total number cured | 445 |
| Total number improved | 101 |
| Total number unknown | 22 |
| Total number died | 32 |
| Total number sent to hospital..... | 31 |
| Families supplied with from 1 pint to 2 quarts of milk daily..... | 67 |
| Families supplied with eggs, 1 dozen weekly..... | 27 |

The financial statement for the year 1916-1917 shows the following distribution of expenditures:

| | |
|-------------------------------------|-------------------|
| Salaries | \$1,080.00 |
| | 1,020.00 |
| | 1,020.00 |
| | 1,020.00 |
| | 945.00 |
| | 40.00 |
| | 30.00 |
| | 92.00 |
| Drugs and dressings | 525.79 |
| Milk and eggs | 2,089.92 |
| Car fares and sundry expenses | 454.47 |
| Total | <u>\$8,317.18</u> |

The usefulness of the Wilder Charity Visiting Nurse Department would be extended considerably if nominal payments for intermittent service were allowed from people who cannot afford to pay for a nurse continuously and yet who are not needy enough to be admitted without charge to the privileges of the nursing service under present conditions.

An important addition to the health service of the Wilder Charity is now being projected. This is a central dispensary to be called the Ammerst H. Wilder Dispensary and to be located on Rice Street between Summit and College Avenues, near the Miller Memorial Hospital with which it will co-operate. Plans for the building are very nearly perfected and it is expected that the work will be completed so that the Dispensary can start operations by September, 1919. Besides the Dispensary there will be organized a number of Health Centers, probably four or five, similar to the one now in operation which will act as feeding stations to the Central Dispensary, and which will care for slight ailments not requiring intensive medical care besides being centers for general health education.

The Health Center.

The Health Center was started in November, 1917, for the purpose of giving curative and, more especially, preventive medical care to persons within the Health Center district who are unable to pay for private treatment, and also with the further intent to help the people of that district to build up their standards of physical health and efficiency.

For financial resources the Health Center depends entirely upon the Wilder Charity.

All persons living within the district are urged to have a general medical examination, by their own physician, or if they are unable to afford a private physician, they are given free service at the clinics.

The work is under the direction and jurisdiction of the Wilder Charity, and immediately under a supervisor who has had medical training and experience in social work. Besides the paid assistance of a clerk and trained nurse, there is a considerable amount of volunteer help,—a gymnasium teacher for the girls and one for the boys, a coach for the boys' athletics, a swimming teacher, and four district workers for the follow-up social work. The order of the clinics at the present time is as follows:

| | |
|------------------------------|---------|
| Tuesdays 10 A. M..... | General |
| Wednesdays 9 to 12 A. M..... | Dental |
| Wednesdays 3:30 P. M..... | Eye |
| Thursdays 9 to 12 A. M..... | General |
| Fridays 9 to 12 A. M..... | Dental |

An account of the work accomplished for the year 1918 is as follows:

1918.

| <i>Clinic Report</i> | Jan. | Feb. | Mar. | Apr. | May. | June | Jul. | Aug. | Sept. | Oct. | Nov. | Dec. | TOTAL |
|----------------------|------|------|------|------|------|------|------|------|----------------|------|------|------|-------|
| Clinics | 40 | 36 | 32 | 41 | 38 | 29 | 25 | 14 | 16 | 22 | 12 | 17 | 365 |
| Physical Exam..... | 13 | 56 | 53 | 119 | 64 | 107 | 2 | 0 | 16 | 70 | 0 | 0 | 500 |
| General-Adult | 20 | 16 | 8 | 22 | 10 | 13 | 8 | 17 | 7 | 17 | 13 | 9 | 160 |
| General-Children | 14 | 17 | 23 | 48 | 20 | 25 | 40 | 62 | 41 | 87 | 20 | 38 | 436 |
| Eyes | 46 | 62 | 44 | 45 | 21 | 46 | 3 | 1 | 0 | 3 | 5 | 37 | 313 |
| Ear, Nose, Throat | 18 | 19 | 37 | 23 | 17 | 21 | 11 | 7 | 15 | 31 | 1 | 22 | 222 |
| Teeth | 71 | 58 | 95 | 120 | 131 | 76 | 73 | 59 | 63 | 61 | 57 | 71 | 935 |
| Women | 10 | 9 | 12 | 11 | 16 | 7 | 2 | 0 | 2 | 1 | 2 | 0 | 72 |
| Office | 6 | 14 | 20 | 8 | 60 | 21 | 29 | 41 | 24 | 37 | 23 | 46 | 329 |
| Babies,Th. Discon. | 25 | 22 | 15 | 3 | 1 | 270 | 168 | 187 | Influenza..... | 194 | 35 | 565 | 565 |
| TOTAL CASES | 223 | 273 | 307 | 400 | 340 | 586 | 168 | 187 | 168 | 307 | 315 | 258 | 3532 |
| <i>Nurses Report</i> | | | | | | | | | | | | | |
| Nurses Calls | 173 | 233 | 155 | 259 | 242 | 243 | 307 | 276 | 177 | 466 | 631 | 315 | 3477 |
| Extra Calls | | | | | 93 | | 25 | | | | 769 | | 887 |
| TOTALS | 173 | 233 | 155 | 259 | 335 | 243 | 332 | 276 | 177 | 466 | 1400 | 315 | 4364 |
| Sent to Hospital.. | 12 | 35 | 14 | 9 | 10 | 11 | 16 | 9 | 5 | 6 | 13 | 6 | 146 |
| Operations | 9 | 15 | 10 | 2 | 4 | 3 | 13 | 5 | 3 | 5 | 1 | 1 | 71 |
| Births | | | | | | 1 | | 1 | | | | | 2 |
| Deaths | 1 | | | 1 | | | 2 | 2 | 1 | 1 | 1 | 1 | 10 |

VOLUNTEER WORK.

One registered nurse and 2 senior nurses have given service. Volunteer district workers help us keep in touch with families. Classes in corrective and general gymnastics, organized games and dancing are held regularly for both girls and boys. Swimming classes are held for both girls and boys. Health Center clubs for both girls and boys are active. Athletic teams for both girls and boys represent the Health Center. All of these activities are under the direction of competent physical instructors. The Health Center co-operates with the following agencies: the Lincoln School, School Nurses, City Playgrounds Department, City Physicians, Hope Chapel, United Charities, Red Cross, University of Minnesota and local hospitals.

The financial statement from November 1917 to June 1918 is as follows:

| | |
|--------------------------|------------|
| Salaries | \$1,835.00 |
| Other expenditures | 1,046.97 |

At least one other center—at the Market Place Playground—is contemplated. It should be thoroughly understood that Health Centers are not intended for the treatment of disease, but for medical examination and treatment of minor ailments which are ordinarily neglected and therefore are not likely to receive treatment at a central clinic before they become serious ailments.

HEALTH WORK OF THE UNITED CHARITIES

The work done by the United Charities along health lines is carried on through the Free Medical Dispensary, the Adult Dental Clinic, and the Committee on Tuberculosis, and the purpose of the work is first to give medical care to those who are unable to pay the regular fee, and second, to promote the general health conditions of the community. The financial resources are from voluntary subscriptions in the case of the Free Medical Dispensary and the Adult Dental Clinic, and for the Tuberculosis Committee, Red Cross Christmas Seal sales. Applicants are admitted without question to the Free Medical Dispensary and the Adult Dental Clinic when referred by recognized charitable organizations, and personal applicants are admitted on satisfactory evidence of need and inability to pay private physicians.

The direction of the entire health program is in the hands of the Board of Directors of the United Charities of St. Paul, Executive Committee, and the Committee on Health; the immediate direction of all professional work, however, is with a Chief of Staff in the case of the Free Medical Dispensary, and with the Oral Hygiene Committee of the Ramsey County Dental Association in the case of the Adult Dental Clinic.

The qualifications for the supervising head are as follows,—professional, medical and dental endorsement of the Ramsey County Medical and the Ramsey County Dental Associations respectively; medical social service, professional training, and experience in recognized institutions.

Clinic schedule:

FREE MEDICAL DISPENSARY CLINICS

| | |
|--|---------------------|
| MORNING CLINICS | 9-11:30 A. M. |
| 1. Adult Dental | Daily |
| AFTERNOON CLINICS | 1-2 P. M. |
| 1. Medical | Tues., Thur., Sat. |
| 2. Children's | Thurs., Sat. |
| 3. Eye | Tues., Thur., Sat. |
| 4. Refraction | Mon., Wed., Fri. |
| (Appts. made Tues., Thur., Sat.) | |
| 5. Ear, Nose and Throat | Tues., Thurs., Sat. |
| 6. Skin | Mon., Fri. |
| 7. Orthopedic | Tues., only. |
| 8. Surgical | Fri., only. |
| 9. Dental cards for children | Mon., Wed., Fri. |
| 10. Women's | Tues., Sat. |
| 4:30-6:30 P. M. | |
| 11. Venereal for women and children..... | Monday |
| EVENING CLINICS | 8:00 P. M. |
| 1. Venereal for men | Tues., Thurs. |
| 2. Venereal for women | Wed. |

A summary of the work accomplished during the last year is contained in the following:

FREE MEDICAL DISPENSARY—Sept. 1, 1917 to Sept. 1, 1918

| | Patients | | Total | Operations |
|-------------------------|----------|-------|--------|------------|
| | New | Old | | |
| Medical | 558 | 1,291 | 1,849 | |
| Surgical | 220 | 302 | 522 | 11 |
| Orthopedic | 93 | 168 | 261 | |
| Eye | 978 | 3,306 | 4,284 | |
| Ear | 174 | 312 | 486 | |
| Nose and Throat..... | 723 | 722 | 1,445 | 220 |
| Women's | 201 | 416 | 617 | |
| Children's | 434 | 599 | 1,033 | |
| Nervous and Mental..... | 16 | 51 | 67 | |
| Skin | 411 | 933 | 1,344 | 1 |
| TOTAL | 3,808 | 8,100 | 11,908 | 232 |

ADULT DENTAL CLINIC—Sept. 10, 1917 to Sept. 30, 1918.

| Old Patients | New Patients | Total |
|------------------------|--------------|-------|
| 983 | 349 | 1,332 |
| Amalgam fillings | 182 | |
| Cement fillings | 250 | |
| Crowns | 9 | |
| Treatments | 395 | |
| Extractions | 754 | |
| Cavities | 501 | |
| Cleanings | 145 | |
| Plates | 57 | |
| Plates repaired | 4 | |
| Reset Crowns | 1 | |

The financial statement available is for the year ending September 1, 1917, and is as follows:

DISBURSEMENTS

| | |
|---|-------------|
| Adult Dental Clinic | \$1,608.01 |
| Free Medical Dispensary | 4,036.77 |
| Cleveland School Dental Clinic | 673.36 |
| Anti-tuberculosis Dept. including open-air Class room and Red Cross Seal cam- paign, with payments to State and Na- tional Ass'ns. including 1916 campaign | 5,069.13 |
| Total | \$11,387.27 |

Altho not wholly under the auspices of the United Charities, the recently opened Venereal Disease clinics may well be discussed here. The clinic was opened the first of October under the following arrangements. The salaries of the attending physicians are paid out of State funds, the equipment and social service is furnished by the United Charities, as well as the necessary dispensary room at the St. Paul Free Dispensary, and nurses' assistance to the physicians is rendered by two of the Wilder Charity Nurses. There are four clinics a week,—for the men Tuesdays and Thursdays at 7 P. M., and for the women Mondays at 4:30 P. M., and Wednesdays at 7 P. M. The latter are in the charge of a woman physician.

The clinic has been established such a short time that we can present a record of work done for only the period from October first to January first and that is as follows:

| Month | Old cases remaining under care | New cases admit- ted | Total under care | Discontinued With permission | Treatment Without permission | Cases remain- ing | No. of treatments given |
|-----------|--------------------------------------|----------------------------|------------------------|------------------------------------|------------------------------------|-------------------------|-------------------------------|
| Oct. | | 47 | 47 | 14 | | 33 | 50 |
| Nov. | 33 | 59 | 92 | 11 | 2 | 79 | 165 |
| Dec. | 79 | 43 | 122 | 19 | | 103 | 209 |
| TOTAL | | 149 | | 44 | 2 | | 424 |

Patients treated:

| | |
|-----------------------|-----|
| Syphilitic only | 49 |
| Gonorrheal only | 56 |
| Both | 7 |
| Total | 112 |

Examined only:

| | |
|----------------------|----|
| Negative | 36 |
| Diag. deferred | 1 |
| Total | 37 |

Patients referred to Veneral Clinic from

| | |
|--------------------------------|-----|
| Reading News Account | 48 |
| State Board of Health | 38 |
| Social Service Department..... | 22 |
| General Dispensary | 12 |
| Outside Physician | 7 |
| United Charities | 6 |
| Baby Welfare Association | 6 |
| Other patients of Clinic | 5 |
| Police Court | 3 |
| City and County Hospital | 2 |
| Total | 149 |

It is gratifying that the city's need for venereal disease control is being met in so efficient a manner. It is a pity, however, that such work and the other dispensary work has to be carried on under the difficulty of an inadequate building.

NURSING SERVICE OF THE METROPOLITAN LIFE INSURANCE COMPANY

The aim of the nursing branch of the Metropolitan Life Insurance Company is to provide nursing service to policy holders insured under industrial policies, and to promote educational work through circulars on the care of the health. All policy holders insured under industrial policies are eligible to receive nursing service, with a limitation in respect to maternity cases. The work is under the direction of the welfare Department of the Metropolitan Life Insurance Company, and under the immediate supervision of a graduate registered nurse who must qualify as a visiting nurse, and who has one assistant, these two composing the nursing force. For financial resources the nursing work of the Welfare Department has, of course, the backing of the Metropolitan Life Insurance Company. In the year 1917 the amount spent was \$1,561.13, which meant a cost per visit of \$0.609 and a cost per policy of \$0.056. A comparison of the cost per visit with that of the nursing service of the Wilder Charity shows a cost for the latter of \$0.662, or \$0.053 more than that of the Metropolitan Life Insurance nursing service. In both cases the cost is computed on the basis of salaries alone, with no drugs or dressings included, since the Metropolitan Welfare Department does not furnish them as does the Wilder Visiting Nurse Department.

The number of patients treated by the Metropolitan Welfare Department per thousand policies in that year were 35.207. Besides actual nursing work done, there was a considerable amount of educational work accomplished in 1917, as may be seen from the following:

CIRCULARS AND BULLETINS USED IN 1917.

| | |
|-----------------------------------|--------|
| All about Milk | 1,300 |
| Child | 3,775 |
| Child (Foreign) | 385 |
| Fake Consumption Cures | 575 |
| First Aid in the Home..... | 5,575 |
| Food Facts | 3,000 |
| Health of the Worker..... | 530 |
| How to Live Long | 635 |
| Magic Health Book | 900 |
| Safety First Booklet | 600 |
| Teeth, Tonsils and Adenoids | 1,280 |
| War on Consumption | 225 |
| First Steps | 3,080 |
| Fly | 100 |
| Milk Circular | 300 |
| Total | 22,260 |

In addition special campaign work was done in Baby Week, and distributions were made in the schools, Bureau of Health, and the Red Cross.

It perhaps would be advantageous to both the Welfare Department of the Metropolitan Life Insurance Company and the Visiting Nurse Department of the Wilder Charity to combine nursing service and to have it maintained under one organization. Since the Wilder Charity has the larger staff, it might be well to have the Metropolitan Life Insurance Company pay the Wilder Nursing Department for nursing service rendered to the former's policy holders, and obviate the disadvantage of maintaining two organizations.

Health Work of Professional and Commercial Organizations

ST. PAUL ASSOCIATION OF COMMERCE

The work of the Health Committee of the St. Paul Association of Commerce is mainly educational. It was the body, for instance, which started the discussion eventuating in the establishment of a venereal disease clinic under the auspices of the Division on Venereal Diseases of the State Board of Health, the United Charities, and the Wilder Charity nurses. Of a more recent date it took the initiative in raising such a public demand for more drastic measures of dealing with the epidemic of influenza that a Citizens' Influenza Committee was appointed by the Commissioner of Public Safety which took into its own hands such preventive and remedial work as the City Health Department was unable to do because of its involvement in much "red tape", and accomplished excellent results thereby.

ORAL HYGIENE COMMITTEE OF THE ST. PAUL DISTRICT DENTAL SOCIETY

The health work of the Oral Hygiene Committee of the District Dental Society is largely propaganda of an educational nature. At the present time the Committee supervises the work of the dentists at the dental clinics at the Edison and Cleveland Schools. These clinics are held every morning from 9 until 12 and are not only for the children in those schools, since after they are all cared for there are admitted to clinic service children from five other schools as well. The dentists working at the adult dental clinic at the Free Medical Dispensary are also supervised by the District Dental Society. The United Charities pay for their services and materials used, and originally they bore like expenses for the school clinics, altho now the Department of Education has taken over such expenses.

Conditions of Health in Industry

State legislation regarding the promotion of health in industry is very meager,—in fact all there is is merely on sanitation and not on medical matters. A compilation of the labor laws of the State affecting health or sanitation in the industrial world is given below:

"3837. SEATS FOR FEMALES—Every employer of females in any mercantile, manufacturing, hotel, or restaurant business, and every agent in charge of any such business, shall provide and maintain suitable seats in the room where they work, and permit such use thereof by them as may be necessary for the preservation of their health."

"3887. (As amended by Chap. 288. G. L. 1911) CLEANLINESS, ETC.—Every building in which labor is employed shall be kept clean and free from effluvia arising from any sewer, drain, or privy; be properly ventilated; and provided with privies for the separate use of male and female employes, to the number of at least one of such closets for each twenty-five persons employed, properly screened, and at all times kept in a sanitary condition. Whenever the labor performed is such as to require a change of clothing, separate dressing rooms shall be provided for the sexes. Suitable receptacles for sputum shall be provided by the employers, the same to be of such form and construction and of such number as shall be satisfactory to the state board of health, or the commissioner of labor and his assistants."

"3890. BAKERIES AND CONFECTIONERY ESTABLISHMENTS.—Every bakery and confectionery establishment shall be of good workmanship, well drained, and constructed and plumbed according to established sanitary principles. Every room used for the manufacture, storage, or sale of bread or other food products shall be light, dry, and airy. The floors and walls of every room used for the manufacture of such food products shall be so constructed as to exclude rats, and other vermin, be at all times free from moisture, and kept in good repair. Its floors shall have a smooth surface, constructed of wood, cement, or tile laid in cement, save that when it is more than four feet below the level of the street or adjacent ground, it shall never be constructed of wood. Its walls and ceilings shall be whitewashed at least once in three months, and the floors, utensils, and furniture of such room, and of every room used for the storage or sale of such food products, shall be so arranged as to be easily kept clean, and together with the wagons used for its delivery shall be kept in a clean and sanitary condition. No water closet, earth closet, privy, ash pit, or sleeping room for workmen shall be in, or communicate directly with any bake-room or with the kitchen of any hotel or public restaurant."

"3888. UNDERGROUND APARTMENTS.—No basement, cellar, underground apartment, or other place which the commissioner of labor shall condemn as unhealthy and unsuitable shall be used as a workshop,

factory or place of business in which any person or persons shall be employed."

"Section I. (G. S. 3851) FEMALES IN CERTAIN EMPLOYMENTS—HOURS OF LABOR—No female shall be employed in any mercantile establishment, restaurant, lunch room or eating house or kitchen operated in connection therewith more than ten hours in any one day or fifty-eight hours in any one week, or in any mechanical or manufacturing establishment more than nine hours in any one day or fifty-four hours in any one week, or in any telephone or telegraph establishment more than nine hours in any one day or fifty-four hours in any one week in cities of the first and second class.

Provided that a different apportionment of hours may be made for the sole purpose of giving a shorter day's work for one day of the week, and further provided that the provisions of this act shall not apply to employment required in the canning or otherwise preserving of perishable fruits, grains or vegetables where the period of operating an establishment requiring such employment does not exceed six weeks in duration. Provided further, that females may be employed in retail mercantile establishments not more than eleven hours on Saturday each week, but no case to exceed a total of more than fifty-eight hours in any one week.

Every employer shall post in a conspicuous place in every room in which such persons are employed a printed notice stating the number of hours' work, and the hours when the time allowed for meals begins and ends.

The printed forms of such notices shall be provided by the commissioner of labor.

The employment of such person at any time other than as stated in said printed notice shall be deemed a violation of the provisions of this section unless it appears that such employment was to make up time lost on a previous day of the same week in consequence of the stopping of machinery upon which he or she was employed or dependent, but no stopping of machinery for less than thirty consecutive minutes shall justify such overtime employment, nor shall overtime employment be authorized until a written report of the day and hour of its occurrence and duration is sent to the commissioner of labor.

"Sec. 2. (G. S. 3852) ALLOWANCE FOR MEALS.—In each such establishment at least sixty minutes shall be allowed for the noon day meal unless the commissioner of labor shall permit a shorter time.

Where employes are required or permitted to work more than one hour after six o'clock p. m., they shall be allowed at least twenty minutes to obtain lunch before beginning to work overtime."

"Sec. 3. (G. S. 3853) NUMBER IN ROOM.—No more employes shall be required or permitted to work in a room in any such establishment than will allow to each of such employes not less than four hundred cubic feet of air space, unless by a written permit of the commissioner

of labor such amount of air space for each employe may be reduced to not less than two hundred fifty cubic feet of air space."

"Sec. 4. (G. S. 3854) VENTILATION.—The owner, agent or lessee of any establishment shall provide in each work room thereof proper and sufficient means of ventilation; if excessive heat be created or if steam, gases, vapors, dust or other impurities that may be injurious to health be generated in the use of such establishment, the rooms must be ventilated in such manner to render them harmless, so far as is practicable and in case of the failure to so ventilate, the commissioner of labor shall order such ventilation to be provided.

Such owner, agent or lessee shall provide such ventilation within twenty days after the service upon him of such order and in case of failure to comply therewith shall forfeit to the people of the state ten dollars for each day after the expiration of such twenty days, to be recovered by the commissioner of labor in an action brought for that purpose."

"Sec. 5. (G. S. 3855) SANITATION.—Every factory and work shop in the state where women and children are employed and where dusty work is carried on shall be lime washed or painted at least once in every twelve months.

Every floor of any room of any establishment herein named where women are employed shall be thoroughly cleaned with soap and water at least once in six months and every dressing room and water closet in such establishment shall be thoroughly cleaned with soap and water once in every week."

Sec. 6. (G. S. 3856) PENALTY FOR VIOLATION.—Every employer, superintendent, owner or other agent of any establishment named in section one hereof who violates any of the provisions of this chapter shall be guilty of a misdemeanor."

CHAPTER 21—G. L. 1913.

"Section 1. (G. S. 3899) PHYSICIANS TO REPORT CERTAIN CASES OF POISON TO COMMISSIONER.—Every physician attending on or called in to visit a patient whom he believes to be suffering from poisoning from lead, phosphorous, arsenic or mercury or their compounds or from anthrax, or from compressed air illness, contracted as a result of the nature of the patient's employment shall send to the commissioner of labor a notice stating the name and full postal address and place of employment of the patient and the disease from which in the opinion of the physician, the patient is suffering, with such other specific information as may be required by the commissioner of labor and which may be ascertained by the physician in the course of his duties."

"Sec. 2. (G. S. 3900) FAILURE A MISDEMEANOR.—If any physician, when required by section 1 of this act to send a notice, fails forthwith to send the same, he shall be guilty of a misdemeanor and upon conviction shall be punished by a fine not exceeding ten dollars, or by imprisonment in the country jail for not exceeding ten days."

"Sec. 12. (G. S. 3850) PHYSICIAN'S CERTIFICATE.—In case any child appears to be unable to perform the labor at which he or she is employed, the officials of the labor department or truant officers, shall require the employer of such child to procure a certificate from a reputable practicing physician duly designated for such purpose by the school board affirming the physical fitness of the child for such work, and a child as to whom such certificate cannot be obtained shall not be employed. Any person refusing to produce the certificate herein required upon demand, or who shall employ a child when a certificate has been procured stating that such child is physically unable to work, shall be guilty of a misdemeanor."

As is obvious from the laws quoted above there are no legal requirements for medical examination or service to employees. For the purpose of this survey inquiries were made in sixty stores and factories to see how much voluntary health work is being done. In no case was there found any medical examination, altho in some cases a rather superficial physical examination was given, usually by the matron. Some places of employment had a nurse or a combination of matron, nurse, and social worker on call, and a few had doctors called when necessary, altho not on duty all the time. On the whole, the state of affairs was about what would be expected where the State laws make no definite stipulations, and where the promotion of health among industrial workers is left entirely to the discretion of the individual employer.

Information regarding mutual benefit associations from these same stores and factories was more definite, and accordingly the following data was compiled:

| | |
|--|-------------------------------------|
| Stores and Factories visited | 60 |
| Stores and Factories having Benefit Societies. | |
| Under 100 Employees | 5 No information. |
| 200 to 500 Employees | 3 Pays sickness and death benefits. |
| | 1 Accident and death. |
| | 3 Accident, sickness and death. |
| | 1 No information. |
| More than 500 employees | 1 Pays sickness and death benefits. |
| | 1 Sickness, accident and death. |
| | 3 No information. |
| No information | 1 |

19

Stores and Factories having Benefit Societies, plus Workman's Compensation (State Law).

| | |
|------------------------------|-------------------------------------|
| 100 to 200 Employees | 1 Pays sickness and death benefits. |
| | 1 Sickness, accident and death. |
| 200 to 500 Employees | 1 Sickness and death. |
| | 1 Accident and death. |
| | 2 Sickness, accident and death. |
| More than 500 Employees..... | 1 Sickness. |
| | 1 Sickness and accident. |
| | 1 Sickness and death. |

9

Workman's Compensation (State Law).

| | |
|-------------------------------|----|
| Less than 100 Employees | 14 |
| 100 to 200 Employees | 6 |
| 200 to 500 Employees | 6 |
| More than 500 Employees | 2 |
| No information | 1 |

29

No Information

| | |
|---|---|
| 200 to 500 Employees | 1 |
| No information regarding number of employees | 2 |

3

Similar tabulations were made for the mutual benefit societies and fraternal organizations in the city, other than those already listed among the stores and factories, and for the trade unions in the city. Fifty-seven mutual benefit societies and thirty-three trade unions responded to our questionnaires, giving us the following data:

INFORMATION OBTAINED FROM 57 ORGANIZATIONS.

Organizations having dues of 25c or less:

| | Organizations |
|--|---------------|
| No information | 9 |
| Sickness \$10 a month. No information regarding A. or D..... | 2 |
| Sickness, Accident and Death | 3 |
| 1 pays \$20 S., \$20 A., and \$500 D. | |
| 1 pays \$7 S., \$7 A., and \$100 D. | |
| 1 pays \$40 S., \$40 A., and \$50 D. | |
| Sickness and Death. No information regarding Accident..... | 2 |
| 1 pays \$5 m. S., and \$250 to \$500 Death. | |
| 1 pays \$20 m. S., and \$25 D. | |
| Only Death. No information regarding S., or A..... | 3 |
| 1 pays \$100 death benefit. | |
| 1 pays \$500 to \$1000. | |
| 1 pays \$900. | |

—19

Organizations having dues of 25c to 50c a month:

| | |
|---|---|
| No information | 6 |
| Sickness, Accident and Death Benefits | 8 |
| 1 pays \$65 month S., Benefit, \$65 Mo. A. and \$300 D. | |
| 1 pays \$20 month S. Benefit, \$20 Mo. A. and \$50 D. | |
| 1 pays \$20 months S. Benefit, \$20 Mo. A. and \$500-\$1000 D. | |
| 1 pays \$20 month S. Benefit, \$20 Mo. A. and \$60 D. | |
| 1 pays \$20 month S. Benefit, \$20 Mo. A. and \$50-\$100 D. | |
| 1 pays \$24 month S. Benefit, \$24 Mo. A. and \$50 D. | |
| Death-no information regarding sickness and Accident | 3 |
| 1 pays \$100 to \$300 death benefit. | |
| 1 pays \$250 to \$2,000 death benefit. | |
| 1 pays \$50 death benefit. | |
| Sickness, no information regarding A. and D..... | 2 |
| 1 pays \$25 month. | |
| 1 pays \$16 month. | |
| Sickness and Death, no information regarding A..... | 4 |
| 1 pays \$24 month Sickness and \$250, 500, 1,000 Death. | |
| 1 pays \$5 month Sickness and \$1,000 Death. | |
| 1 pays \$20 month Sickness and \$75 Death. | |
| 1 pays \$8 month Sickness and \$800 Death. | |
| Sickness \$20 month, A. \$20 a month, no information regarding D... 1 | |

—24

Organizations having dues of 50c to \$1.00 a month:

| | Organizations |
|--|---------------|
| Sickness and Death, no information regarding Accident..... | 3 |
| 1 pays \$20 month for S. and \$600 D. | |
| 1 pays \$20 month for S. and \$50 D. | |
| 1 pays \$20 month for S. and \$1,000 D. | |
| Sickness, no information regarding Accident or Death..... | 2 |
| 1 pays \$17 month Sickness. | |
| 1 pays \$10 month Sickness. | |
| Sickness \$5, Accident \$5, and Death \$100, \$200, \$300..... | 1—6 |

Organizations having dues over \$1.00 a month:

| | |
|---|-----|
| No information | 3 |
| 1 pays \$75 Death benefit, no information Sickness and Accident | 1—4 |

Organizations having no information regarding dues paid monthly:

| | |
|-------------------------------------|-----|
| No information | 1 |
| Death, no information S. and A..... | 3 |
| Total | 4—4 |
| | 57 |

Information obtained from 33 Unions in St. Paul.

Unions having dues of 50c a month or less:

| | |
|--|----|
| No information | 2 |
| Sickness and Accident \$20 month, Death \$40 | 1 |
| Sickness and Accident \$30 Month. No information Death..... | 1 |
| Death, but no information regarding Sickness and Accident..... | 4 |
| | —8 |
| 2 paying \$100 Death benefit. | |
| 1 paying \$150 death benefit. | |
| 1 paying \$4,000 Death benefit. | |

Unions having dues of 50c to \$1.00 a month:

| | |
|---|----|
| No information | 1 |
| Paying, Sickness, Accident and Death Benefits | 5 |
| 2 paying \$20 month S. and A. and \$100 Death. | |
| 1 paying \$20 month S. and A. and \$50 to \$300 D. | |
| 1 paying \$50 month S. and A. and \$50 D. | |
| 1 paying \$20 month S. and A. and \$1,000 D. | |
| No information S. and A. pays \$100 Death benefit..... | 1 |
| No information regarding D. but pays \$12 mo. S. and A..... | 1 |
| | —8 |

Unions having dues of \$1.00 to \$1.50 a month:

| | |
|--|----|
| No information | 2 |
| Sickness, Accident and Death benefits..... | 5 |
| 1 paying \$20 month S. and \$40 D. | |
| 1 paying \$28 month S. and A. and \$500 D. | |
| 1 paying \$28 month S. and A. and \$300 D. | |
| 1 paying \$32 month S. and A. and \$114. | |
| 1 paying \$20 month S. and A. and \$2,000. | |
| No information regarding S. and A. but | 2 |
| | —9 |
| 1 paying \$100 Death benefit. | |
| 1 paying \$50 Death benefit. | |

Unions having no information regarding dues paid monthly:

| | |
|---|----|
| No information | 5 |
| Sickness, Accident and Death benefits | 2 |
| 1 paying \$20 month S. and A. and \$100 D. | |
| 1 paying \$40 month S. and A. and \$475 D. | |
| No information regarding S. and A. but \$75 D. | 1 |
| | —8 |

Total33

The above tabulations do not lend themselves easily to interpretation because the classifications are so numerous and so lacking in similarity that they do not allow reliable statistical conclusions. However, it is possible to state that out of 60 stores and factories there are about one-third which have benefit societies, about one-sixth having benefit societies and also agreeing to operate under the State Workman's Compensation Law, and practically one-half that have no benefit organizations but agree to the Workman's Compensation Law. Furthermore, out of the 57 fraternal organizations listed there are paid in varying amounts sick benefits by 25 organizations, accident benefits by 11 organizations, and death benefits by 25 organizations. In the case of the 33 unions listed 14 paid sick benefits, 14 accident benefits, and 19 paid death benefits, all in varying amounts.

Conclusions

Each chapter in the study contains certain statements regarding the existing conditions of sanitation and health service in the City of St. Paul that pertain to the subjects under discussion. There are certain general conclusions, however, which would be drawn from the report and which briefly stated are as follows:

1. The Health Bureau of the City of St. Paul has been under investigation two different times during the last five or six years and many of the defects found have not been removed nor have the recommendations made been carried out.

2. The City of St. Paul does not have the lowest death rate of any city in the United States if we use the figures of the United States Census for the basis of our inquiry.

3. The death rate from preventable diseases shows an undue failure to use preventive methods for the control of such diseases. This is especially true of tuberculosis, measles, scarlet fever, diphtheria, etc.

4. The enforcement of the Housing Ordinance passed by the City Council in March, 1918, is lax. This is due to a shortage of inspectors and a poor record system.

5. The water supply is adequate and of good quality but large numbers of families do not enjoy the advantage of using city water. Approximately 21.9% of the families in the city are not using city water.

6. The removal of waste entails an expenditure of many thousands of dollars to the city and no provisions have been made to salvage the marketable products contained in this waste.

7. The sections of the City Charter dealing with health and sanitation in the City of St. Paul are confusing, afford opportunities for overlapping of service and division of responsibility. It is evident that a complete revision of these sections in the City Charter is absolutely essential before efficient health work can be done by the City of St. Paul.

8. The system of records kept in the Bureau of Health is inadequate and many recommendations which have been made by the investigator of the Federal Government and by the St. Paul Association have never been carried out.

9. The food inspection and particularly the milk and dairy inspection require a complete readjustment and a clearer division of the responsibility between the State and City before adequate service will be secured.

10. There are a very large number of private agencies carrying on health work which are rendering remarkable service. There is, however, some duplication, particularly in the field of nursing where correlation of the services would lead to economy and a higher degree of efficiency.

11. The sanitary work in the schools is being carried on as efficiently as is possible under the conditions afforded in the schools. It is unfortunate, however, that approximately one-fourth of the school children do not come within the jurisdiction of the Department of Education because they are attending private and parochial schools.

12. The amount of contagious disease among school children is such as to indicate the need for more intensive service of both the medical and the nursing staff.

13. The general sanitary conditions in the schools are in many instances deplorable as was indicated in the School Survey which was made some time prior to the preparation of this report. A very considerable amount of work should be done in improving the sanitary conditions of the schools of the City of St. Paul since lighting, toilet facilities, etc., require immediate attention.

14. It is remarkable that practically all of the dispensary work done in the City of St. Paul is done under private auspices rather than under the direction and at the expense of the city.

While the conditions in general do not give cause for undue alarm, the naturally healthful climate of St. Paul and the general conditions of sanitation due to the geographic location of the community should make it possible to place St. Paul at the head of the list of healthful cities in the country. This can be accomplished by a very slight increase of the expenditure for health, by revision of the present charter, and a shifting and increase in the present personnel employed by the city government.

PRESS OF W. A. KELLER CO., ST. PAUL

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